apcmag

TRIPLE CD EXTRAVAGANZA: Y2K FIX KIT ★ PERSONALISE YOUR DESKTOP BUILD AN INTRANET ★ COREL WP FOR LINUX

3 CDs

Australian Personal Computer

ISSN – 4115 NZ $9.50 INCL. GST

Australia's leading computer magazine April 1999 $8.50

100% Australian content

FIRST TAKE

Pentium III PCs: First releases from Gateway and Beyond

Satnet: Satellite Internet is here and it's fast

Canon BJC-7000 and Epson Stylus Color 900: Two of the best-ever printers

AutoCAD 2000

Solaris 7/Intel

Dragon NaturallySpeaking Mobile

Laplink Professional

WORKSHOP

- Technobabble: Networking protocols
- Step by Step: Get more from digital cameras
- Windows 98 Update
- Linux clockwatching
- Programming: C++ and Java
- **Plus** OS/2, Mac, Shareware and much more

On this month's software-packed CDs

- Swat the millennium bug with our Y2K fix kit
- Corel WordPerfect 8 for Linux: 100M+ of files
- Give your PC a facelift with our desktop dressing toolkit
- Build a business: Set up an intranet/extranet using DIY groupware
- DIY groupware: All the tools to share your company's resources and information across an intranet, an extranet and the Internet

If your jam-packed CDs are missing, ask your newsagent!

DO YOU NEED PIII NOW?



Y2K SUPERGUIDE

Myths & methods

Fix it now

apcmag.labs reviews

10 budget scanners

16 monitors: 19in and 21in

Build an intranet/extranet

Notes/Domino, Exchange and GroupWise

04

9 313006 001362

DISC 1

NEW & HOT

EmailFerret 1.51, Icoholics Anonymous 4.b, ICQ Backup 2.6, Infradig Personal Server 1.27, Nendo 1.1, RightClick-MP3 1.51, Telnet98 3.0, JS Office 1.5, eCatch 2.1, EZSurfer99 5.1

WORKSHOP

Windows: BiblePro 6.0, Theophilos 2.6, Pagan DayBook II 4.0b, Virtual Rosary 3.5, Prayer Times 4.0, Crucifixion Theme

OS/2: PMView, Albatros Media Player 2.0b6, QuickMotion 2.0, Embellish 2.01, MainActor 1.5

Mac: Uli's Moose 2.0 and Phrase Editor 2.2, DeskBots 1.6, Kineticon 1.4, MyEyes 2.3.2, Yo! 1.0, Kaleidoscope 2.1.1

Linux: Postilon, Ace of Penguins, Code Crusader, GQ, Stamp

Windows Workshop files: Microsoft Office Service Pack 1 & 2, Word 97 Template Security Patch

Other Workshop files: Mac OS files, Java files, C++ files

BANDWIDTH BUSTERS

Corel WordPerfect for Linux

GAMEZONE

Baseball Edition 2000, Virtual Deep Sea Fishing, Virtual Tennis, Imperialism II: Age of Exploration, Pro Pilot 99

BROWSERS

Microsoft IE 4.01 SP1, Microsoft Internet Explorer 4.0, Microsoft IE 3.03, Netscape Communicator 4.5, Netscape Communicator 4.08, Netscape Navigator 4.08

DISC 2

DESKTOP ADD-ONS

3D Color Changer 98, Bali Tools, DeskTop Auto-Rebuilder, Desktop Goodies 5.0, Drag and View 95, EjectMenu, Encrypted Magic Folders, Extensions Strip, FastView Plus, File Splitter Deluxe, FinderPop, GTI Desktop+ 2.0, iView Multimedia, QuickSpell 1.1.0, TweakExplorer, Tweaki for Power Users, WindowPictures 1.1, WinNavigator, WrapUp 2.2, Xfolder, X-it 2.51

CURSORS

Axialis AX-Cursors, All the Trek Cursors 1.0, Coca-Cola Cursor Set 1.1, Enterprise Mouse Cursors 1.0, Froggie Hopper Animated Cursor Set 1.0, Homers Hair 4.0, Karin's Kow Animated Cursor Set 1.0, Kitten Caboodle Animated Cursor Set 1.0, Macintosh Cursors 1.0, Morphing Cursers 1.0, Murray Mouse Cursor Set 1.0, Mute Jump Cursor 1.5, Neil Pryde Animated Cursors 1.0, NHL Cursors 1.0, Real3Dcursors 2.0, Real3Dpointers 2.0, SportyMouse! Cursor Set 1.0a, Star Wars Cursors 1.0, Ted E. Bear Animated Cursor Set 1.0, Tumi's 3D Gravity 1.0, Tumi's 3D Tools 1.0, X-Files Cursor Set 1.1

SCREENSAVERS

3D Museum, AC/DC, Alien Resurrection, All Space, Antz, Aquatica, Australian Bush Flowers, Bacardi Cuba Libre, Bare Naked Ladies, Bible Verses and Inspirations, Big Cats, Bill's Pie Toss, Blaze, BMW Z3, Budweiser Frogs, Bundaberg Rum, Cayman Islands Underwater, Coca Cola, Dancing Baby 2, Denver Broncos (Swan Lake), Doctor Who, Earth, Electric!, Forrest Gump, Fractopia, Garfield's Midnight Snack, Giorgio Armani, Guinness Beer, HP Mopy Fish, Impressionist Paintings, Jack Daniels, Johnny Castaway, Jokes, M&Ms, Madonna, Millenium Countdown, Princess Diana Tribute, Sports Illustrated Swimsuit 99, Starcraft, Success Quotes, Sydney Swans, Tasmanian Devil, Teletubbies, The Clinton Blues Satire, Titanic, Truman Show, Turkey Shoot, UFO Photos 1942-1998, V8 Supercars, Waterfalls

SOUND TOOLS

AudioCD MP3 Studio by PTS-Software 1.1a, Albatros CD Player 2.0, Audiograbber, Audiotools 2.2, Cakewalk Pro Audio 8.0, CD Magic, Cowon Jet-Audio, Desktop Jukebox 2.1, Dj MP3 Gold, DubIt 1.01, FreeAmp, FreeMidi, MacAmp, Mpecker Encoder 1.0b13, Musicmatch Jukebox 3.0, PlayerPro, PMCD2WAV, Sonique 0.75 beta, Sound Studio for Linux, WillowTALK, WinDAC, X11Amp

WALLPAPER TOOLS

All Space Wallpaper Manager 1.0, Amazing Desktop Wallpaper Manager 1.0, WallChanger 2.1, Wallpaper Changer 1.0, Wallpaper Randomizer 1.0

GAMEZONE

3D BlackJack & Trainer 1.0, 3D Ten Thousand 1.01, 3Dt 1.1, Ancient Ivory 3.5, BVS Solitaire Collection 2.2, DiceDeluxe 1.0, Dizzy Just Another Yamb 2.1, Double Patience 1.10, Kutris 1.0, Midnight Sunitaire 2.02, Net Gin Rummy 3.01, Net Poker 3.01, NetJazzy Version Beta 599, netris32 2.5, Pretty Good Solitaire 98 4.98.2, Super Poker 1999 5.0, Wild Snake 1.0, WinTetris 3, Yatzy-Mega-Giga 1.0, Yo'Dice 2.1

DISC 3

DIY GROUPWARE

Apache HTTP Web Server for Linux, Cold Fusion 4.0, CU-SeeMe, Domino Web Server Gold, GLACI-HTTPD Web Server for Novell 3.14, iCal Web Calender 2.3, Infradig-MAIL Personal Edition, Internet Anywhere Small Business Connect 2.1, I-Queue Server for Windows 95, IRCPlus 1.1, Mdaemon 2.75, Net Schedule Pro 1.0, Lotus Notes R5 Build 164.1, Radio Chat Server 3.73, SiteForum, SMTPBeamer 3.07, TeamWave Workplace 4.1, TU-CyberFone, VCI IntraNote Server 1.1, WebBoard 3.0, WircSrv 5.07

Y2K

Adapt/PC-2000 1.02, AllClear 2000 Pro 2.7e, BugFix 2000 2.0, Centennial 2000, Centurion Year 2000 Test 1.0, ClokTest 2000 3.331, Date Detective 4.0, DateHound 1.12, MFX2000, Microsoft Virtual Machine Update, Microsoft Windows NT Server 4.0 SP 4 Y2K compliance Service Update Norton 2000, OnMark 2000 3.0, PC Life 2000 3.0.2, Quick Consultant: Survey and Questionnaire Software (Year 2000) 1.2a, Uh-Oh 1.0, Windows 95 Year 2000 Update, Windows 98 Year 2000 Update, Y2K Coutdown Program, Y2K Test&Fix 1.10, Year 2000 Countdown Screen Saver

BANDWIDTH BUSTERS

Lotus Notes R5 Build 164.1

GAMEZONE

Lander, Machines, NASCAR Racing 3 Movie, Pro Pinball: Big Race USA, Rollcage, Roller Coaster Tycoon

INTRODUCING DELL'S ULTIMATE SENSORY EXPERIENCE.

FEATURING THE INTEL® PENTIUM® III PROCESSOR 500MHz.



Dell Dimension® XPS T500

Open your eyes to the Next Big Thing: Hyper-realistic multimedia. Immerse yourself in a world of blazing graphics and explosive sound with our fastest desktop ever – the new Dell Dimension® XPS T500. Experience a new level of performance with an Intel® Pentium® III processor 500MHz. Upgrade to your choice of a 16MB STB nVidia Graphics Card, a Turtle Beach Montego Sound Card or Altec Lansing ADA – 880 Dolby® Digital speakers, and blow your mind with a system specifically designed for the rich graphics and booming sound of cutting edge 3D games and multimedia Web sites. Call Dell today or visit our WebStore and experience for yourself the ultimate gift for your eyeballs and eardrums.

NEW DELL DIMENSION® XPS T500
NEW INTEL® PENTIUM® III PROCESSOR 500MHz

- Mini Tower Chassis
- 512KB Single Bank Pipeline Burst Cache
- 128MB 100MHz SDRAM
- NEW 25GB Ultra ATA Hard Drive
- 3.5" 1.44MB Diskette Drive
- 16MB STB nVidia TNT 2X AGP Graphics Card
- Turtle Beach Montego II 320 Voice PCI Sound Card
- 4.8X DVD-ROM Drive and Decoder Card with TV out
- Altec Lansing ADA-880 Full Dolby® Digital Speakers with Subwoofer
- 19" Colour Monitor (17.9" v.i.s.)
- Logitech 4 button MouseMan® Wheel (PS/2v)
- Microsoft® Windows® 98
- NEW Microsoft® OEM Works Suite 99
- NEW Power Game Pack Optimised for Intel® Pentium® III Processors
- McAfee Virus Scan
- 3Com® USR 56K Capable V.90 PCI WinModem
- Iomega Zip 100MB Internal Drive
- NEW Microsoft® Elite Keyboard
- 3 Year Limited Warranty
- Free Lifetime Telephone Technical Support

$6,179* plus delivery

or $52 per week**

Upgrade options include:
- 256MB 100MHz SDRAM $389
- 21" Trinitron® Monitor (19.8" v.i.s.) $1,001
- Call for a complete range of upgrades

NEW DELL DIMENSION® XPS T500
NEW INTEL® PENTIUM® III PROCESSOR 500MHz

- Mini Tower Chassis
- 512KB Single Bank Pipeline Burst Cache
- 128MB 100MHz SDRAM
- 12.9GB Ultra ATA Hard Drive
- 3.5" 1.44MB Diskette Drive
- 16MB STB nVidia TNT 2X AGP Graphics Card
- Turtle Beach Montego II 320 Voice PCI Sound Card
- 40X Variable EIDE CD-ROM Drive
- Altec Lansing ACS-495 Full Dolby® Surround Sound Speakers with Subwoofer
- 17" Colour Monitor (15.9" v.i.s.)
- Logitech 4 button MouseMan® Wheel (PS/2v)
- Microsoft® Windows® 98
- NEW Microsoft® OEM Works Suite 99
- NEW Power Game Pack Optimised for Intel® Pentium® III Processors
- McAfee Virus Scan
- 3Com® USR 56K Capable V.90 PCI WinModem
- 3 Year Limited Warranty
- Free Lifetime Telephone Technical Support

$4,459* plus delivery

or $38 per week**

Upgrade options include:
- Iomega Zip 100MB Internal Drive $146
- 17.2GB Ultra ATA Hard Drive $331
- Call for a complete range of upgrades

NEW DELL DIMENSION® XPS T450
NEW INTEL® PENTIUM® III PROCESSOR 450MHz

- Mini Tower Chassis
- 512KB Single Bank Pipeline Burst Cache
- 64MB 100MHz SDRAM
- 8.4GB Ultra ATA Hard Drive
- 3.5" 1.44MB Diskette Drive
- 8MB ATI® EXPERT 98D 3D AGP Graphics Card
- Turtle Beach Montego A3D 64 Voice PCI Sound Card
- 40X Variable EIDE CD-ROM Drive
- Harman Kardon HK195 Speakers
- 17" Colour Monitor (15.9" v.i.s.)
- Microsoft® IntelliMouse™
- Microsoft® Windows® 98
- NEW Microsoft® OEM Works Suite 99
- NEW Power Game Pack Optimised for Intel® Pentium® III Processors
- McAfee Virus Scan
- 3Com® USR 56K Capable V.90 PCI WinModem
- 3 Year Limited Warranty
- Free Lifetime Telephone Technical Support

$3,339* plus delivery

or $28 per week**

Upgrade options include:
- 12.9GB Ultra ATA Hard Drive (7,200rpm) $233
- 19" Colour Monitor (17.9" v.i.s.) $360
- Call for a complete range of upgrades

intel inside
pentium® III

Call Dell Mon to Fri 8am-8pm, Sat 9am-3pm (EST), or visit our WebStore

Visit our 24 hour WebStore
for custom-configuration and on-line ordering

www.dell.com.au

DELL

BUY DELL **1300 303 107**

Please quote this key code: 7007329

DELD0104/APC/FRONT

YES, THE PRICES ARE REAL. IT'S THE TE

DELL DIMENSION™ DESKTOPS – MULTIMEDIA SYSTEMS

COMMON FEATURES

- Mini Tower Chassis
- Free Lifetime Telephone Technical Support
- 3.5" 1.44MB Diskette Drive
- Microsoft® Windows® 98
- McAfee Virus Scan
- 3 Year Limited Warranty

NEW DELL DIMENSION™ XPS T450
NEW INTEL® PENTIUM® III PROCESSOR 450MHz

- 512KB Single Bank Pipeline Burst Cache
- 128MB 100MHz SDRAM
- 12.9GB Ultra ATA Hard Drive
- 16MB STB nVidia TNT 2X AGP Graphics Card
- Turtle Beach Montego A3D 64 Voice PCI Sound Card
- 4.8X DVD-ROM Drive and Decoder Card with TV out
- Altec Lansing ACS-495 Full Dolby® Surround Sound Speakers with Subwoofer
- 17" Colour Monitor (15.9" v.i.s.)
- Microsoft® IntelliMouse™
- NEW Microsoft® OEM Works Suite 99
- NEW Power Game Pack Optimised for Intel® Pentium® III Processors
- 3Com® USR 56K Capable V.90 PCI WinModem
- NEW Microsoft® Elite Keyboard

$4,249* plus delivery

or $36 per week**

Upgrade options include:
- 17.2GB Ultra ATA Hard Drive (7,200rpm) $331
- Turtle Beach Montego II 320 Voice PCI Sound Card $78
- Call for a complete range of upgrades

NEW DELL DIMENSION™ XPS T450
NEW INTEL® PENTIUM® III PROCESSOR 450MHz

- 512KB Single Bank Pipeline Burst Cache
- 64MB 100MHz SDRAM
- 8.4GB Ultra ATA Hard Drive
- 8MB ATI® EXPERT 98D 3D AGP Graphics Card
- Turtle Beach Montego A3D 64 Voice PCI Sound Card
- 40X Variable EIDE CD-ROM Drive
- Harman Kardon HK195 Speakers
- 17" Colour Monitor (15.9" v.i.s.)
- Microsoft® IntelliMouse™
- NEW Microsoft® OEM Works Suite 99
- NEW Power Game Pack Optimised for Intel® Pentium® III Processors
- 3Com® USR 56K Capable V.90 PCI WinModem

$3,339* plus delivery

or $28 per week**

Upgrade options include:
- 12.9GB Ultra ATA Hard Drive (7,200rpm) $233
- 19" Colour Monitor (17.9" v.i.s.) $360
- Call for a complete range of upgrades

DELL DIMENSION™ XPS R400
INTEL® PENTIUM® II PROCESSOR 400MHz

- 512KB Single Bank Pipeline Burst Cache
- 64MB 100MHz SDRAM
- 12.9GB Ultra ATA Hard Drive
- 8MB STB nVidia 3D AGP Graphics Card
- Turtle Beach Montego A3D 64 Voice PCI Sound Card
- Harman Kardon HK195 Speakers
- 40X Variable EIDE Cd-ROM Drive
- 17" Colour Monitor (15.9" v.i.s.)
- Microsoft® IntelliMouse™
- NEW Microsoft® OEM Works Suite 99

$3,019* plus delivery

or $25 per week**

Upgrade options include:
- 128MB 100MHz SDRAM $194
- 19" Colour Monitor (17.9" v.i.s.) $360
- Call for a complete range of upgrades

DELL DIMENSION™ V400
INTEL® PENTIUM® II PROCESSOR 400MHz

- 512KB Single Bank Pipeline Burst Cache
- 128MB 100MHz SDRAM
- 8.4GB Ultra ATA Hard Drive
- ATI® 8MB 3D 2X AGP Integrated Graphics
- Yamaha 64 Voice Wavetable Integrated Sound
- Harman Kardon HK195 Speakers
- 4.8X DVD-ROM Drive and Software Decoding
- 17" Colour Monitor (15.9" v.i.s.)
- Microsoft® IntelliMouse™
- NEW Microsoft® OEM Works Suite 99
- 3com® USR 56K Capable V.90 PCI WinModem

$3,099* plus delivery

or $26 per week**

Upgrade options include:
- 128MB 100MHz SDRAM $194
- Iomega Zip 100MB Internal Drive $146
- Call for a complete range of upgrades

DELL® INSPIRON® FULLY FEATURED NOTEBOOKS

COMMON FEATURES

- Integrated 256KB L2 Cache
- 3.5" 1.44MB Diskette Drive
- Microsoft® Windows® 98
- 1 Year Limited Warranty
- Free Lifetime Telephone Technical Support

NEW DELL® INSPIRON™ 7000 A333GT
NEW INTEL® PENTIUM® II PROCESSOR 333MHz

- 128MB SDRAM
- 10GB Ultra ATA Hard Drive
- 8MB ATI® RAGE LT PRO 2X AGP Video Controller
- High-fidelity Audio SoundBlaster Compatible
- 4X DVD-ROM Drive and Internal Decoder Card
- 14.1" XGA Colour TFT Display
- New Microsoft® Office 97 Small Business Edition
- Realport Ethernet 10/100 and 56K Modem
- Iomega Zip 100MB Internal Drive
- Leather Carrying Case
- Second Battery
- Port Replicator

$8,179* plus delivery

or $69 per week**

Upgrade options include:
- 14GB Ultra ATA Hard Drive $467
- 256MB SDRAM $1,594
- Call for a complete range of upgrades

NEW DELL® INSPIRON™ 7000 A366LT
NEW INTEL® PENTIUM® II PROCESSOR 366MHz

- 64MB SDRAM
- 8GB Ultra ATA Hard Drive
- 8MB ATI® RAGE LT PRO 2X AGP Video Controller
- High-fidelity Audio SoundBlaster Compatible
- 24X Variable CD-ROM Drive
- 15" XGA Colour TFT Display
- NEW Microsoft® OEM Works Suite 99
- 56K Data/Fax Modem (V.90 Capable)
- Deluxe Carrying Case

$6,639* plus delivery

or $56 per week**

Upgrade options include:
- 10GB Ultra ATA Hard Drive $447
- 4X DVD-ROM Drive and Internal Decoder Card $331
- Call for a complete range of upgrades

NEW DELL® INSPIRON™ 7000 A366GT
NEW INTEL® PENTIUM® II PROCESSOR 366MHz

- 64MB SDRAM
- 6.4GB Ultra ATA Hard Drive
- 8MB ATI® RAGE LT PRO 2X AGP Video Controller
- High-fidelity Audio SoundBlaster Compatible
- 4X DVD-ROM Drive and Internal Decoder Card
- 14.1" XGA Colour TFT Display
- NEW Microsoft® OEM Works Suite 99
- 56K Data/Fax Modem (V.90 Capable)
- Deluxe Carrying Case

$6,119* plus delivery

or $51 per week**

Upgrade options include:
- 128MB SDRAM $194
- Second Battery $194
- Call for a complete range of upgrades

NEW DELL® INSPIRON™ 7000 333LT
NEW INTEL® PENTIUM® II PROCESSOR 333MHz

- 64MB SDRAM
- 6.4GB Ultra ATA Hard Drive
- 8MB ATI® RAGE LT PRO 2X AGP Video Controller
- High-fidelity Audio SoundBlaster Compatible
- 24X Variable CD-ROM Drive
- 15" XGA Colour TFT Display
- NEW Microsoft® OEM Works Suite 99
- 56K Data/Fax Modem (V.90 Capable)
- Deluxe Carrying Case

$5,989* plus delivery

or $50 per week**

Upgrade options include:
- 128MB SDRAM $194
- 8GB Ultra ATA Hard Drive $194
- Call for a complete range of upgrades

DELL® INSPIRON™ – MAXIMUM MOBILITY NOTEBOOKS

COMMON FEATURES
- Integrated 256KB L2 Cache
- 3.5" 1.44MB Diskette Drive
- Microsoft® Windows® 98
- 1 Year Limited Warranty
- Free Lifetime Telephone Technical Support

NEW DELL® INSPIRON™ 3500 A366GT
NEW INTEL® PENTIUM® II PROCESSOR 366MHz

- 64MB SDRAM
- 4GB Ultra ATA Hard Drive
- 256-bit Graphics Accelerator
- High-fidelity Audio SoundBlaster Compatible
- 24X Variable CD-ROM Drive
- 14.1" XGA Colour TFT Display
- NEW Microsoft® OEM Works Suite 99
- 56K Data/Fax Modem (V.90 Capable)
- Deluxe Carrying Case

$5,499* plus delivery

or $46 per week**

Upgrade options include:
- 128MB SDRAM $194
- 6.4GB Ultra ATA Hard Drive $194
- Call for a complete range of upgrades

NEW DELL® INSPIRON™ 3500 D333GT
NEW INTEL® PENTIUM® II PROCESSOR 333MHz

- 32MB SDRAM
- 4GB Ultra ATA Hard Drive
- 256-bit Graphics Accelerator
- High-fidelity Audio SoundBlaster Compatible
- 24X Variable CD-ROM Drive
- 14.1" XGA Colour TFT Display
- NEW Microsoft® OEM Works Suite 99
- 56K Data/Fax Modem (V.90 Capable)
- Deluxe Carrying Case

$4,809* plus delivery

or $40 per week**

Upgrade options include:
- 128MB SDRAM $292
- 6.4GB Ultra ATA Hard Drive $194
- Call for a complete range of upgrades

DELL PRECISION™ WORKSTATION

COMMON FEATURES
- 512KB Single Bank Pipeline Burst Cache
- 3.5" 1.44MB Diskette Drive
- Microsoft® Windows® NT 4.0
- 3 Year Limited Warranty
- Free Lifetime Telephone Technical Support

ADVANCED PERFORMANCE GRAPHICS SYSTEM

NEW DELL PRECISION™ WORKSTATION 610
INTEL® PENTIUM® II XEON™ PROCESSOR 450MHz (DUAL PROCESSOR CAPABLE)

- Mini Tower Chassis
- 256MB 100MHz SDRAM with ECC
- 18GB LVD SCSI Hard Drive
- Integrated 3Com® Fast Etherlink XL
- Integrated Ultra2/Wide and Ultra Wide SCSI Controllers
- Integrated Dual ATA-33 EIDE Controller
- Evans & Sutherland Accel Galaxy 31 Graphics Card
- Integrated SoundBlaster Pro Compatible
- 32X Variable SCSI CD-ROM Drive
- 21" Trinitron® Monitor (19.8" v.i.s.)
- Dell® Mouse

$11,919* plus delivery

or $100 per week**

PERFORMANCE GRAPHICS SYSTEM

DELL PRECISION™ WORKSTATION 410
INTEL® PENTIUM® II PROCESSOR 450MHz (DUAL PROCESSOR CAPABLE)

- Mini Tower Chassis
- 128MB 100MHz SDRAM with ECC
- 9GB LVD SCSI Hard Drive
- Integrated 3Com® Fast Etherlink XL
- Integrated Ultra2/Wide and Ultra Wide SCSI Controllers
- Integrated Dual ATA-33 EIDE Controller
- Evans & Sutherland Accel Galaxy 31 Graphics Card
- Integrated SoundBlaster Pro Compatible
- 32X Variable SCSI CD-ROM Drive
- 21" Trinitron® Monitor (19.8" v.i.s.)
- Dell® Mouse

$9,389* plus delivery

or $79 per week**

TECHNOLOGY THAT'S UNBELIEVABLE.

DELL® POWEREDGE® SERVERS

COMMON FEATURES

- 512KB Internal Cache
- 3.5" 1.44MB Diskette Drive
- 3 Year Limited Warranty
- Free Lifetime Telephone Technical Support

DELL DIMENSION® V400C
INTEL® CELERON™ PROCESSOR 400MHz

- 128KB Single Bank Pipeline Burst Cache
- **Intel® 440BX AGPset**
- 64MB 100MHz SDRAM
- 8.4GB Ultra ATA Hard Drive
- ATI® 8MB 3D 2X AGP Integrated Graphics
- Yamaha 64 Voice Wavetable Integrated Sound
- 32X Variable EIDE CD-ROM Drive
- Harman Kardon HK195 Speakers
- 15" Colour Monitor (13.7" v.i.s.)
- Microsoft® IntelliMouse™
- NEW Microsoft® OEM Works Suite 99
- 3Com® USR 56K Capable V.90 PCI WinModem

$2,239* plus delivery

or $19 per week**

Upgrade options include:
- 128MB 100MHz SDRAM $194
- Altec Lansing ACS-495 Full Dolby® Surround Sound Speakers with Subwoofer $169
- Call for a complete range of upgrades

DELL® POWEREDGE® 2300 SERVER
INTEL® PENTIUM® II PROCESSOR 450MHz (DUAL PROCESSOR CAPABLE)

- Rack-mount Capable Mini Tower (Midnight Grey)
- 64MB 100MHz SDRAM with ECC (Upgradeable to 1GB)
- 4GB LVD SCSI Hard Drive
- Standard Intel® Pro 100+ NIC
- Integrated Ultra2/LVD and Ultra/Narrow SCSI Controllers
- 32X Variable SCSI CD-ROM Drive
- 15" Colour Monitor (13.7" v.i.s.)
- Standard Openview Network Node Manager S.E.

$5,109* plus delivery

or $43 per week**

DELL® POWEREDGE 1300 SERVER
INTEL® PENTIUM® II PROCESSOR 450MHZ (DUAL PROCESSOR CAPABLE)

- Mini Tower (Midnight Grey)
- 128MB 100MHz SDRAM with ECC (Upgradeable to 1GB)
- 4GB LVD SCSI Hard Drive
- Standard Intel® Pro 100+ NIC
- Integrated Ultra2/LVD SCSI Controller
- 32X Variable EIDE CD-ROM Drive
- Standard Openview Network Node Manager S.E.

$4,519* plus delivery

or $38 per week**

DELL® POWEREDGE® 1300 SERVER
INTEL® PENTIUM® II PROCESSOR 350MHZ (DUAL PROCESSOR CAPABLE)

- Mini Tower (Midnight Grey)
- 64MB 100MHz SDRAM with ECC (Upgradeable to 1GB)
- 4GB LVD SCSI Hard Drive
- Standard Intel® Pro 100+ NIC
- Integrated Ultra2/LVD SCSI Controller
- 32X Variable EIDE CD-ROM Drive
- Standard Openview Network Node Manager S.E.

$3,539* plus delivery

or $30 per week**

DELL DIMENSION® DESKTOPS – SMALL BUSINESS SYSTEMS

COMMON FEATURES

- Mini Tower Chassis
- 3.5" 1.44MB Diskette Drive
- Microsoft® Windows® 98
- McAfee Virus Scan
- 3 Year Limited Warranty
- Free Lifetime Telephone Technical Support

NEW DELL DIMENSION® XPS T500
NEW INTEL® PENTIUM® III PROCESSOR 500MHz

- 512KB Single Bank Pipeline Burst Cache
- 128MB 100MHz SDRAM
- 12.9GB Ultra ATA Hard Drive
- 3Com® 10/100 TXM PCI Ethernet Controller
- 8MB ATI® EXPERT 98D 3D AGP Graphics Card
- Yamaha 64 Voice Wavetable Integrated Sound
- 40X Variable EIDE CD-ROM Drive
- Harman Kardon HK195 Speakers
- 17" Colour Monitor (15.9" v.i.s.)
- Microsoft® IntelliMouse™
- New Microsoft® Office 97 Small Business Edition
- 3Com® USR 56K Capable V.90 PCI WinModem

$4,499* plus delivery

or $38 per week**

Upgrade options include:
- 19" Colour Monitor (17.9" v.i.s.) $360
- Iomega Zip 100MB Internal Drive $146
- Call for a complete range of upgrades

DELL DIMENSION® XPS T450
NEW INTEL® PENTIUM® III PROCESSOR 450MHz

- 512KB Single Bank Pipeline Burst Cache
- 128MB 100MHz SDRAM
- 8.4GB Ultra ATA Hard Drive
- 3Com® 10/100 TXM PCI Ethernet Controller
- 8MB ATI® EXPERT 98D 3D AGP Graphics Card
- Yamaha 64 Voice Wavetable Integrated Sound
- 40X Variable EIDE CD-ROM Drive
- Harman Kardon HK195 Speakers
- 17" Colour Monitor (15.9" v.i.s.)
- Microsoft® IntelliMouse™
- New Microsoft® Office 97 Small Business Edition

$3,859* plus delivery

or $32 per week**

Upgrade options include:
- 12.9GB Ultra ATA Hard Drive (7,200rpm) $233
- 19" Colour Monitor (17.9" v.i.s.) $360
- Call for a complete range of upgrades

DELL DIMENSION® V400
INTEL® PENTIUM® II PROCESSOR 400MHz

- 512KB Single Bank Pipeline Burst Cache
- 128MB 100MHz SDRAM
- 8.4GB Ultra ATA Hard Drive
- Integrated Intel® 10/100 PCI Ethernet Controller
- ATI® 8MB 3D 2X AGP Integrated Graphics
- 32X Variable EIDE CD-ROM Drive
- 17" Colour Monitor (15.9" v.i.s.)
- Microsoft® IntelliMouse™
- NEW Microsoft® OEM Works Suite 99

$2,899* plus delivery

or $24 per week**

Upgrade options include:
- Iomega Zip 100MB Internal Drive $146
- 12.9GB Ultra ATA Hard Drive $136
- Call for a complete range of upgrades

DELL DIMENSION® V400c
INTEL® CELERON™ PROCESSOR 400MHz

- 128KB Single Bank Pipeline Burst Cache
- **Intel® 440BX AGPset**
- 64MB 100MHz SDRAM
- 8.4GB Ultra ATA Hard Drive
- Integrated Intel® 10/100 PCI Ethernet Controller
- ATI® 8MB 3D 2X AGP Integrated Graphics
- 32X Variable EIDE CD-ROM Drive
- 15" Colour Monitor (13.7" v.i.s.)
- Microsoft® IntelliMouse™
- NEW Microsoft® OEM Works Suite 99

$2,129* plus delivery

or $18 per week**

Upgrade options include:
- 128MB 100MHz SDRAM $194
- Iomega Zip 100MB Internal Drive $146
- Call for a complete range of upgrades

intel inside pentium® III

Call Dell Mon to Fri 8am-8pm, Sat 9am-3pm (EST), or visit our WebStore

Visit our 24 hour WebStore
for custom-configuration and on-line ordering

www.dell.com.au

DELL

BUY DELL **1300 303 107**

Please quote this key code: 7007150

DELL'S NORMAL TERMS AND CONDITIONS APPLY AND ARE AVAILABLE ON REQUEST. PLEASE CALL OR REQUEST ON-LINE.

***Prices and specifications subject to change without notice. All prices shown include tax but delivery is additional.** Certain configurations cannot be changed. Dell, the Dell logo, and Dell Dimension, Inspiron, PowerEdge are registered trademarks and Precision is a trademark of Dell Computer Corporation. The Intel Inside logo and Pentium are registered trademarks and Celeron is a trademark of Intel Corporation. Microsoft, Windows and Windows NT are registered trademarks of Microsoft Corporation. Other trademarks and trade names may be used in this document to refer to either the entities claiming marks and names or their products. Dell disclaims proprietary interest in the marks and the names of others. All efforts will be made to check for errors in typography and photography; however, inadvertent errors may occur for which Dell may not be responsible. The colour of the Dell system shown in the picture is for advertising purposes only. Photographed with options. Lifetime telephone technical support refers to lifetime of the system. ** Dell can arrange for rentals based on a 36 month term excluding stamp duty and FID which varies from state to state. Rentals and operating leases are available only to approved companies and business customers. Figures shown are indicative and may vary with interest rates. Copyright 1999 Dell Computer Corporation. All Rights reserved.

DELD0104/APC/GSPD

YOU WON'T BELIEVE YOUR EYES.

DELL® INSPIRON® 366MHz WITH A HUGE 15" SCREEN.



Dell® Inspiron® 7000 with a 15" screen

NEW DELL® INSPIRON® 7000 A366LT
NEW INTEL® PENTIUM® II PROCESSOR 366MHz

- Integrated 256KB L2 Cache
- 192MB SDRAM
- 14GB Ultra ATA Hard Drive
- 3.5" 1.44MB Diskette Drive
- 8MB ATI® RAGE LT PRO 2X AGP Video Controller
- High-fidelity Audio SoundBlaster Compatible
- NEW 4X DVD-ROM Drive and Internal Decoder Card
- 15" XGA Colour TFT Display
- Microsoft® Windows® 98
- Microsoft® OEM Office 97 Small Business Edition
- Realport Ethernet 10/100 and 56K Modem
- Iomega Zip 100MB Internal Drive
- Leather Carrying Case
- Second Battery
- Port Replicator
- 1 Year Limited Warranty
- Free Lifetime Telephone Technical Support

$9,599* plus delivery

or $80 per week**

Upgrade options include:
- 256MB SDRAM $1,400
- 384MB SDRAM $2,392
- Call for a complete range of upgrades

NEW DELL® INSPIRON® 7000 A333GT
NEW INTEL® PENTIUM® II PROCESSOR 333MHz

- Integrated 256KB L2 Cache
- 64MB SDRAM
- 4GB Ultra ATA Hard Drive
- 3.5" 1.44MB Diskette Drive
- 8MB ATI® RAGE LT PRO 2X AGP Video Controller
- High-fidelity Audio SoundBlaster Compatible
- 24X Variable CD-ROM Drive
- 14.1" XGA Colour TFT Display
- Microsoft® Windows® 98
- NEW Microsoft® OEM Works Suite 99
- 1 Year Limited Warranty
- Free Lifetime Telephone Technical Support

$4,869* plus delivery

or $41 per week**

Upgrade options include:
- 6.4GB Ultra ATA Hard Drive $194
- 4X DVD-ROM Drive and Internal Decoder Card $331
- Call for a complete range of upgrades

NEW DELL® INSPIRON® 3500 C300GT
NEW INTEL® CELERON™ PROCESSOR 300MHz

- Integrated 128KB L2 Cache
- 32MB SDRAM
- 4GB Ultra ATA Hard Drive
- 3.5" 1.44MB Diskette Drive
- 256-bit Graphics Accelerator
- High-fidelity Audio SoundBlaster Compatible
- 24X Variable CD-ROM Drive
- 14.1" XGA Colour TFT Display
- Microsoft® Windows® 98
- NEW Microsoft® OEM Works Suite 99
- 1 Year Limited Warranty
- Free Lifetime Telephone Technical Support

$3,789* plus delivery

or $32 per week**

Upgrade options include:
- 64MB SDRAM $97
- 4X DVD-ROM and MARGI Decoder Card $486
- Call for a complete range of upgrades

With the option of an Intel® Pentium® II processor 333MHz or 366MHz, the Dell® Inspiron® 7000 is more like a desktop than a mobile notebook. And you'll probably think so too with options like a 15" image screen, huge 14GB Hard Drive, 192MB SDRAM, 8MB Video Controller and much more to enable dazzling multimedia performance. Also, don't forget for extra mobility there's the Inspiron® 3500 series – heavy on performance and features, but light on price. To order, call 1300 303 107 or visit the Dell WebStore at www.dell.com.au

intel inside
pentium® II

Call Dell Mon to Fri 8am-8pm, Sat 9am-3pm (EST), or visit our WebStore

Visit our 24 hour WebStore
for custom-configuration and on-line ordering

www.dell.com.au

DELL®

BUY DELL **1300 303 107**

Please quote this key code: 7007520

DELD0104/APC/RH



THIS OFFER MAY CAUSE

Phys. Gen.

But at only $34.95* a month for 150 hours of Internet access OzEmail's so don't be patient, sign up online now. Or call 132 884 for your

Web
www.ozemail.com.au

*i) Phone charges separate; ii) valid credit card req'd; iii) offer available for dial up modem customers; iv) charging reverts to casual access rates



STIFFNESS & BACKACHES

Warning

OzMegaSaver deal won't hurt your bank balance. Availability is limited
easy to use starter kit. But remember, if pain persists see a doctor.

Email
sales@ozemail.com.au

once hours are used; v) unused hours don't carry forward to the next month; vi) max. session length may apply; vii) conditions apply. OAD3243

Editorial



Introversions

Why we need your feedback in this month's reader survey.

By Jeremy White

As a magazine we try not to be too introverted or self-obsessed. So while many magazines use the editorial page to give you a snapshot of what's in the issue or why the magazine is worth your time, in most issues of *APC*, this page is used to discuss technology and its impact on our lives and work.

Periodically, however, we believe it's important to update readers on what the magazine is doing, especially when there are major changes in the pipeline or under consideration. We aim to be a very reader- driven magazine, and sometimes we like to find out what our readers think we're doing and how we can improve. Sometimes we just want to say thank you for your support.

This month I'd like to do a little bit of all of the above.

First of all, I'd like to say thank you. Without a committed and supportive readership, any magazine is dead in the water. I've been at the helm of *APC* for just over four years and the most satisfying part of my job has been the feedback, guidance and support we've received from our readership. That support has not just manifested itself in significant circulation and readership growth, but it has also driven many of the innovations the magazine has embarked upon.

According to the latest audited circulation figures from the Audit Bureau of Circulations, the magazine now sells on average more than 72,000 copies every issue — more than twice what it sold a few years ago. It's been the fastest growing magazine in the country over the last 10 years. Our hottest issues now sell in the mid to high 80s. And according to Roy Morgan Research, more than 300,000 people now read the magazine every month.

Of course, for the last two and a half years *APC* has been much more than just a magazine on the newsstand. Between 450,000 and 500,000 people use **apcmag.com** every month. And we believe that over 98% of our readers regularly use our pioneering **apcmag.cd**s. We've also had phenomenal support for our new Pocketbooks. The *Linux Pocketbook* now appears to have sold out of its second print run, and there has been strong weekly growth for our weekly magazine on CD, CD Week. Meanwhile our new dedicated Australian IT news service **Newswire** (http://newswire.com.au/) has quickly become essential reading for serious IT news readers and the IT industry.

But most powerful of all is the mountain of individual feedback we receive from readers in a vast array of forms — everything from long emails discussing articles or ideas, through to suggestions on topics to cover. We also receive numerous requests for back issues and even reports of broken CDs or subscription copies folded in the post.

Every time a reader contacts us is an opportunity to improve the magazine — in a microscopic or macroscopic fashion — and we've tried hard to encourage feedback. This has its drawbacks, of course. I'm way behind in answering the reams of emails I've been sent. It sometimes takes longer than we think to ship out products readers have requested.

We know too from all of this feedback that it is essential to keep changing and improving. We operate in a fiercely competitive magazine market.

We know we are up against much cheaper competitors, competitors that rehash overseas editorial content and haven't made the kind of investment in 100% Australian content, meta-media publishing, staffing, technical resources or innovation that we have.

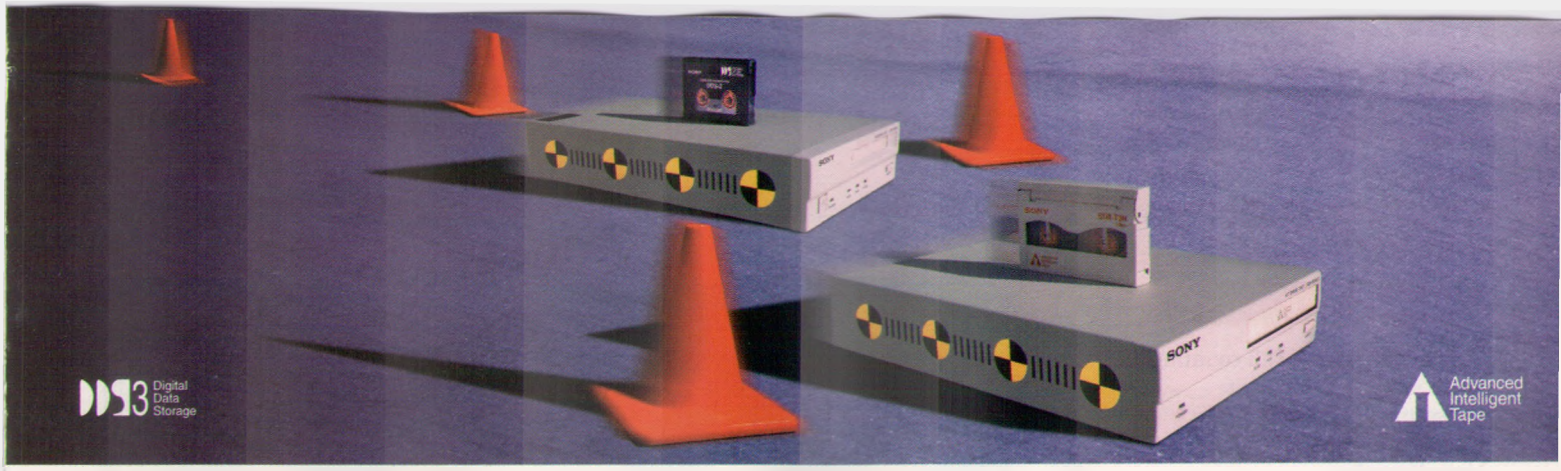
However, we also know from experience on the newsstands and from our ongoing surveys that the answer to these competitive forces is not to drop the quality, drop the expensive Web and CD content, or slash the cover price on the monthly magazine.

Readers have consistently told us in surveys and in voting with their wallets that the quality and value are more important than low price. *APC* always sells best when it offers more value and real innovation, rather than cutting the content and dropping the price. In surveys, the vast majority of readers say that they are prepared to pay a higher price for more and better content and resources, like extra CDs, or the Web content.

But we know that to justify the higher price, clearly we have to offer far and away better value for our readers' dollars. This is our focus in the coming months — to keep making *APC* clearly better value to readers — with the best writing, the most interesting analysis, the most credible recommendations and reviews, and the most useful resources. We're also working on ways to make the magazine more usable, so that it's easier to organise back issues and CDs, and find the content you're looking for from a particular issue more easily. We also have some major online developments in the pipeline.

We need your help, though, in improving the magazine. And this is why I really do implore you to take the time to fill out the detailed reader survey this month. There's a cut-down version on paper in this issue, but we'd really encourage you to tell us what you think in detail, and fill out the more detailed version available at http://apcmag.com/surveys/survey99.

Ultimately, the magazine belongs to you. So please tell us what you think of it and how we can do better.■



Drive safely.

Sony data storage drives may be fast, but they're also incredibly safe. Sony are the only company that builds both the drives and the tapes that run in them. And they're committed to long-term solutions, constantly developing faster transfer rates, increased capacities and ever-longer head and media lives. Both Sony DDS and AIT drives use helical scan technology for greater reliability and faster file access. Cartridges for both technologies feature metal data tape, which gives greater durability than zinc oxide tapes. And nobody comes close to Sony for technical innovations, like the AIT 'Memory-in-Cassette' smart cartridge. For storage solutions from 2 to 260 GB, call 1 800 226 429 or visit www.sony.com.au **It's a Sony.**

SONY

FNL SCP0081/AI

Contents

NEWSWIRE 17

90 million PCs and still counting 17
Tech business in top gear 17
Squeezing the light fantastic 20
Online trade beckons for Oz 20
News Roundup 20
40% of firms have no Y2K plans 22
Online firms in float frenzy 22
Chat room caught in court battle 24

NEWS ANALYSIS

Game for a merger? 26
Tricky times for telcos 28
The politics of software 31

FORUM 53

EDITORIAL 4

READERS' SAY 53

TWO BITS WORTH

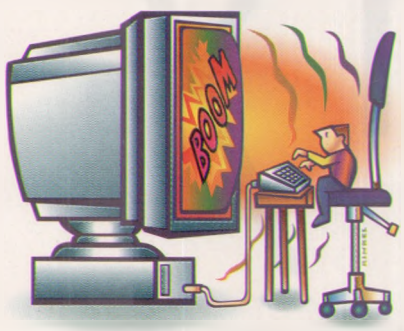
Helen Dancer
Hijacked 54
Jeremy Horey
It's not the end of the world 56
Bruce McCabe
Monopolies' money 57
Julian Ehrlich
Satisfaction 58

PRICE WATCH

Lights, camera, action! 60

SERVICE & RELIABILITY

Take the money and . . . 62



REPROGRAMMING

Looking good 66

BOURSEWARE

Pop! Splat! 67

LEGAL EASE

Protecting our private bits 68

CORPORATE

Leap of faith? 69



PIII goodness: What does it mean?

Intel's new Pentium III microprocessor — formerly known as 'Katmai' — was officially released at the end of February. Until then performance details were relatively scarce, forcing us to rely on oblique references from Intel marketing types about something called "Katmai goodness".

Thankfully we've moved on from there. As outlined in the technical feature starting on **page 95** of this issue, the real winners with the new processor are game players. The PIII (and its 70 new instructions) has the potential to do a lot for 3D performance, offering the chance for better graphics, artificial intelligence and physics engines designed to make 3D games much more compelling. Also discussed is the controversial serial number.

For those interested in test results, turn to **page 32** to see how a couple of new PIII-based machines fared against both each other and a PII-based system.

APC SURVEY 191

Reader Survey 1999
For your chance to win a Brother MFC-7160C Colour Multi-function Centre valued at $1,099, fill in our 1999 Reader Survey on page 191 or online at **apcmag.com/survey/survey99/**.
There are also 10 runner-up prizes of a one-year subscription to *APC*. Entries close at midnight on April 30. The results will be published in *APC* July 1999.



FEATURE 76

ZERO ZERO 76
We have the best Y2K preparations in the world. Congratulations. Let's panic.
By Simon Vandore
Panic merchants 80
Useful contacts 82
Top 10 Y2K myths 84
Industry year 2000 completion targets 86

TECHNICAL 89

THE Y2K REPAIR PROCESS
Just how should you be dealing with Y2K?
By Simon Vandore
How Y2K repair tools work 91

PENTIUM III INSIDE
Intel's Katmai is a boon for gamers, but what about the rest of us? *APC* gets technical with the PIII. 95
By Nathan Taylor



HARDWARE 99

BUDGET SCANNERS
Scanner prices just keep on dropping. We tested 10 cheapies for their best scans. 99
By Josh Mehlman



Editor's Choice 102
How we tested 103
Specifications 104

Agfa SnapScan 1212u 100
Artec Viewstation 1236P 100
Artec Viewstation AM12E Plus 100
Artec Viewstation AS6E 100
Canon CanoScan FB320P 102
Canon CanoScan FB620P 102
Hewlett-Packard ScanJet 4100C 102
KTX 9600AP 102
UMAX Astra 1220U 103
UMAX Astra 610P 103

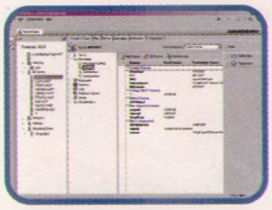
SOFTWARE 115

GROUPWARE: ALL TOGETHER NOW
A look at the top three commercial groupware solutions. 115
By APC *staff*



Lotus Notes/Domino 5.0 116
Microsoft Exchange 5.5 118
Novell GroupWise 5.5 120

DIY groupware: We have the technology 124
Groupware alternatives 125
A real-world implementation 126



HARDWARE 105

MONITORS
Bigger is better, so we tested the biggest CRT monitors we could find. 105
By Darren Ellis

Editor's Choice: 19in monitors 108
How we tested 109
Editor's Choice: 21in monitors 111
19in monitors: Vital statistics 112
21in monitors: Vital statistics 113
Plasma and LCD monitors 113





19in MONITORS

Acer 99c 107
CTX VL950T 107
Hitachi CM753 107
Magtron XJ-810 108
Mitsubishi Diamond View 1995 108
Sony Trinitron GDM 400PS 108
Viewsonic Graphic G790 109

21in MONITORS

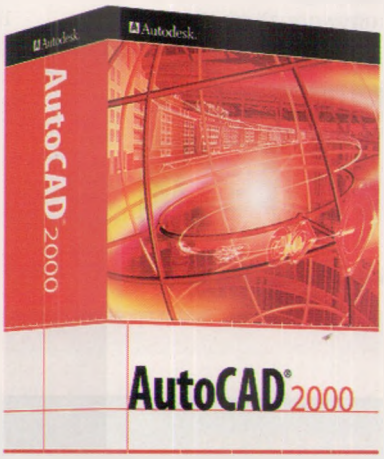
Acer 211c 110
Hitachi SuperScan CM813 110
IBM P202 110
Magtron DJ920 110
Mitsubishi Diamond View 2107 110
NEC MultiSync P1250+ 111
Panasonic PanaSync S110 111
Sony Trinitron GDM 500PS 112
Viewsonic Professional P817 112

FIRST TAKE 32



INTEL PENTIUM III: BEYOND SUPERO VELOCITY 500MHZ AND GATEWAY G7-500
The first PIII-based systems to hit *APC*'s office. 32

SATNET
Affordable satellite Net connections for download junkies. 34

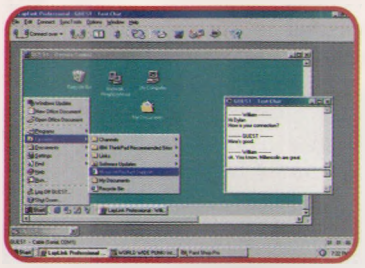


CANON BJC-7100 AND EPSON STYLUS COLOR 900
The latest and greatest from two of the top inkjet printer manufacturers. 36

AUTODESK AUTOCAD 2000
The update to Release 14 has over 400 improvements. 38

SOLARIS 7 FOR INTEL
The latest version of one of the world's workhorses. 40

DRAGON NATURALLYSPEAKING MOBILE
Mobile voice recognition for dedicated dictators. 42



LAPLINK PROFESSIONAL
Remote access software for those on the road. 44

POWERQUEST LOST & FOUND
Bypass professional data recovery centres with this handy tool. 44

WEBCOMPILER AND HTML2EXE 2.1
HTML compression packages for converting Web sites into EXE files. 48

AFTER HOURS 186

BIBLIOFILE
From digital photography to Mac OS 8.5, this month's reviewed books have the answers. 186
Off the Shelf 187
Perspective: Netting the future 188

INTERACTIVE
Sex, science, spelling and a good sinking. 189
Interactive News 190

GAMEZONE
Satisfy your creative and destructive urges in this month's games. 193
Games News 194

WEB FILE
Classic collections hit the Net. 197
Surfbaud: Collectors tension 198

CHIP CHAT
APC's serious back page discusses Ziggy headlines, fishy search engines, and saviour subs. 200
Contest: Technology gag of the month 200

ADVERTISERS' INDEX 16
CD CONTENTS 10
WEB CONTENTS 12
CREDITS 14
CD INFORMATION 184
CONTACT INFORMATION 14, 184

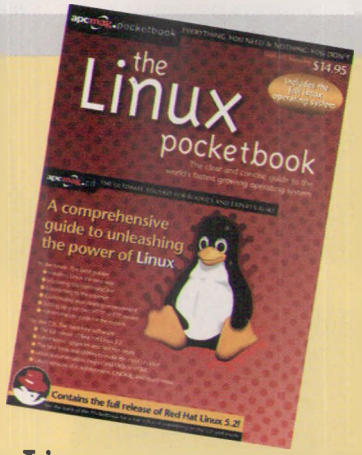
WORKSHOP 127

CONTENTS
Contest: Bug of the Month 127

TECH TALK
Technobabble: Understanding protocols — Ethernet, token ring, TCP/IP, IPX/SPX and ATM 129
By Nathan Taylor

Step by Step: Digital photography tips and tricks 132
By Daniel Rutter

OPERATING SYSTEMS
Windows 98: Bug fixing with Windows Update 135
By Kieran McNamee



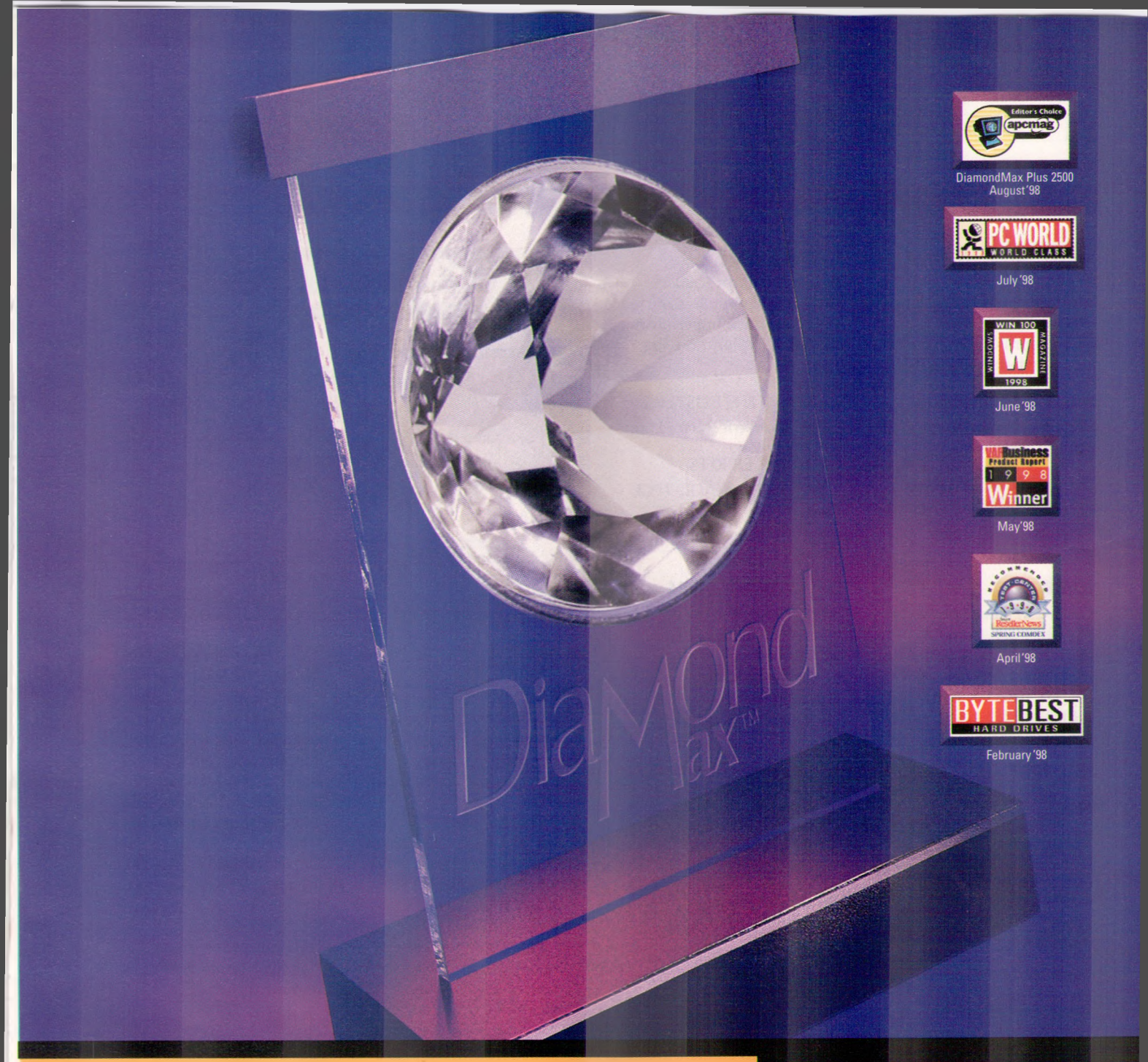
The Linux Pocketbook

On sale NOW at newsagencies everywhere. Comes with Red Hat Linux 5.2 on the cover CD!

OS/2 Warp: MMPM/2 and other multimedia applications 139
By Christopher Relf
Mac OS: AppleScript's new features 141
By Stephen Withers
Linux: Clockwatching with the Penguin 143
By Geoffrey Bennett

PROGRAMMING
Simple C++: Putting variables to work 145
By Michael Smith
Java: Client/server systems, part II 148
By David Williams

SHAREWARE
Shareware summary 152



Editor's Choice apcmag
DiamondMax Plus 2500
August '98

PC WORLD WORLD CLASS
July '98

WIN 100 WINDOWS MAGAZINE 1998
June '98

VAR Business Product Report 1998 Winner
May '98

Reseller News SPRING COMDEX
April '98

BYTE BEST HARD DRIVES
February '98

It's that good.

Well, better actually. DiamondMax hard drives from Maxtor are getting kudos from all over the world. The latest addition to our trophy cabinet is *APC mag's "Editor's Choice" award.* They said our 10 GB DiamondMax Plus 2500 hard drive, "Outpaced the competition, and with its superior rotational speed at 7200 RPM and its large capacity, gave top performance at a reasonable price." Add in seek times as low as 9ms and our 3 year RTB distributor warranty and then compare. Hey, it just doesn't get any better. **Maxtor. It's that simple.**



Maxtor®
it's that simple.
WWW.MAXTOR.COM

servex
service for excellence

Maxtor products are distributed by Servex Australia Pty Ltd (www.servex.com.au)
5 Figtree Drive, Australia Centre, Homebush, NSW 2140, Australia.
Phone: (02)8762 3500, Fax: (02)9764 3290, email: jhsiung@acer.com.au 6297APC

apcmag.cd

This month on *APC*'s cover CDs

GET YOUR PC IN TUNE WITH THE TIMES

- Swat the millennium bug with our Y2K fix kit.
- Give your PC a facelift with our desktop dressing toolkit.

BUILD A BUSINESS

- Set up an intranet/extranet with DIY groupware.

GET SOME REAL LINUX APPLICATIONS RUNNING

Plus much, much more

DISC 1

NEW & HOT

eCatch 2.1, EmailFerret 1.51, EZSurfer99 5.1, Icoholics Anonymous 4.b, ICQ Backup 2.6, Infradig Personal Server 1.27, JS Office 1.5, Nendo 1.1, RightClick-MP3 1.51, Telnet98

GAMEZONE

Baseball Edition 2000, Virtual Deep Sea Fishing, Virtual Tennis, Imperialism II: Age of Exploration, Pro Pilot '99

BANDWIDTH BUSTERS

Corel WordPerfect 8 for Linux

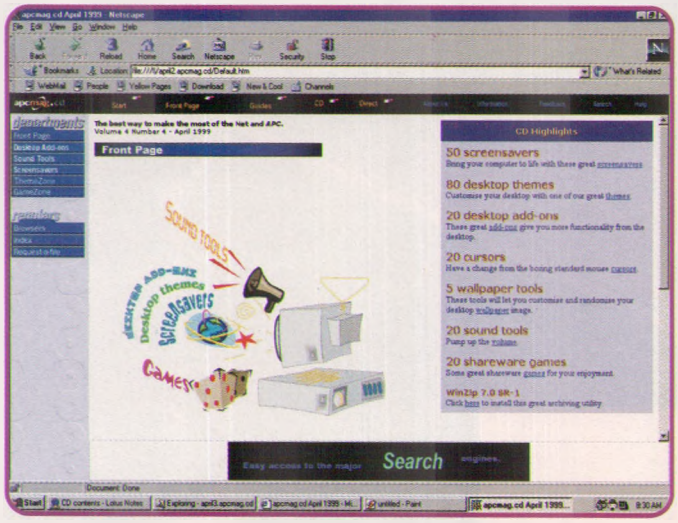
ISP STARTER KITS

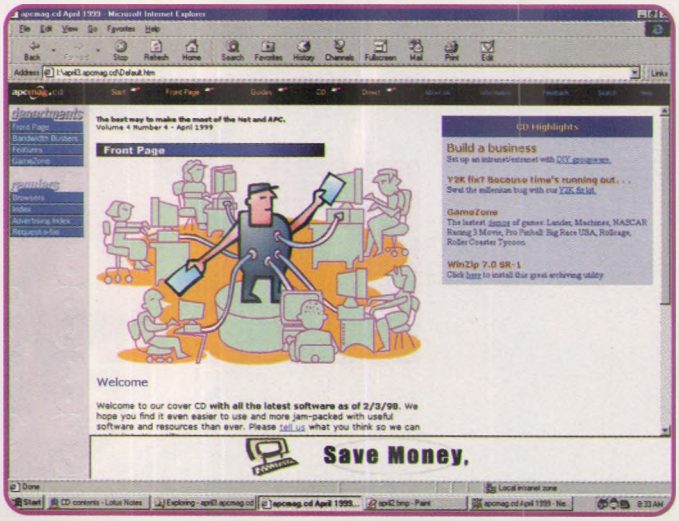
Telstra BigPond, AOL, TPGI, OzEmail

DISC 2

DESKTOP DRESSERS — 200+ PROGRAMS

80 desktop themes
50 screensavers
45 desktop add-ons
20 sound tools
20 shareware games





DISC 3

DIY GROUPWARE

All the tools to share your company's resources and information across an intranet, extranet and the Internet.
Includes: Apache HTTP Web Server for Linux, Cold Fusion 4.0, CU-SeeMe, Domino Web Server Gold, GLACI-HTTPD Web Server for Novell 3.14, iCal Web Calender 2.3, Infradig-MAIL Personal Edition, Internet Anywhere Small Business Connect 2.1, I-Queue Server for Windows 95, IRCPlus 1.1, Mdaemon 2.75 and more . . .

BANDWIDTH BUSTERS

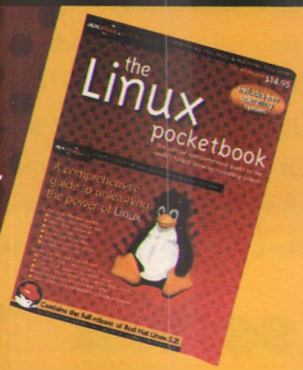
Lotus Notes R5 Build 164.1

Y2K FIX? BECAUSE TIME'S RUNNING OUT . . .

Tesing applications and patches to shake the bug.
Includes: Adapt/PC-2000 1.02, AllClear 2000 Pro 2.7e, BugFix 2000 2.0, Centennial 2000, Centurion Year 2000 Test 1.0, ClokTest 2000 3.331, Date Detective 4.0, DateHound 1.12, MFX2000, Microsoft Virtual Machine Update, Microsoft Windows NT Server 4.0 SP4 Y2K compliance Service Update, Norton 2000 and more . . .

GAMEZONE

Lander, Machines, NASCAR Racing 3 Movie, Pro Pinball: Big Race USA, Rollcage

apcmag.pocketbook
EVERYTHING YOU NEED AND NOTHING YOU DON'T
the Linux pocketbook
Install Linux the easy way and make the most of your system with the Linux Pocketbook. Includes the full release of the Red Hat Linux 5.2 operating system on the cover CD!


Order online at http://apcmag.com/shop/ or phone 1800 252 515 and quote APLX98. Free home delivery.

	price	power	bytes	media	start up
thinkpad 390	$3,968*	Intel® Pentium® II processor 233MHz	3.2GB hard drive 32MB memory	Integrated floppy/cd 12.1" TFT display	ThinkPad 390. The most affordable ThinkPad. Everything you need to help you get your start-up started, all in one package.

e-business tools

thinkpad.start-up



IBM

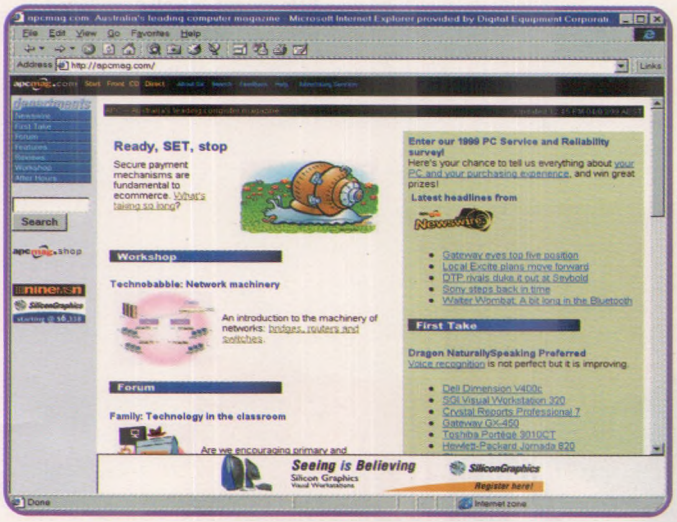
intel inside pentium II

*Price listed for Model 262650M which includes Intel® Pentium® II Processor 233MHz, 32MB SDRAM memory, 3.2GB S.M.A.R.T EIDE Hard Drive, 512KB Cache, 12.1" TFT Display, 24X-10X CD ROM. **Price is Estimated Street Price including sales tax. Individual Reseller Prices may vary.** Prices are subject to change and do not include delivery. MHz denotes microprocessor internal clock speed only; other factors may also affect application performance. PC's referenced in this ad ship with an operating system. ThinkPad and IBM are registered trademarks of International Business Machines Corporation. The Intel Inside Logo and Pentium are registered trademarks of the Intel Corporation. All other product and service names may be registered trademarks or trademarks of their respective companies. © 1999 IBM Australia Limited. ACN 000 024 733. All rights reserved.

SOMPC418

apcmag.com

This month on Australia's most popular technology site



SHOPPED

Looking for the *Linux Pocketbook*? A subscription to *APC*, or our hot new title CD Week? Then look no further than **apcmag.shop**, our one-stop, fully secured online store. Check it out now!
http://apcmag.com/shop/

LOADED

What's better than your weekly software fix from CD Week? The CD Week Web site, of course. You can submit requests for products you would like to see on CD, share software hints with other readers, and join our interactive discussion forums.
http://www.cdweek.com/

MAILED

Newswire's daily email service is now up and running, giving you the latest news in a convenient, easy-to-read format — and at no charge, no less! What are you waiting for?
http://newswire.com.au/subscribe/

STARTED

Looking for the best Web links, the latest news headlines, the best range of search engines — and without heaps of slow-downloading stuff you don't want? Then look no further than **apcmag.start**, our popular Web kick-off point.
http://apcmag.com/start/

apcmag.com.au Newswire

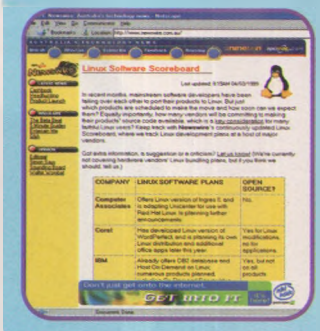
APC is now offering the most comprehensive online technology coverage in Australia with our **Newswire** service. **Newswire** offers 100% Australian technology news, updated throughout each business day so you can keep track of all the latest developments.

Product Launch: A weekly roundup of the latest hardware and software releases.
http://newswire.com.au/product/

Cashbook: Financial developments as they happen in the IT sector, and instant access to stock market data.
http://newswire.com.au/cashbook/

Linux Software Scoreboard: What are the latest plans?
http://newswire.com.au/linux/

You can also subscribe to our daily email bulletin, giving you all the news in a convenient format. Make **Newswire** part of your daily Web routine.
http://newswire.com.au/

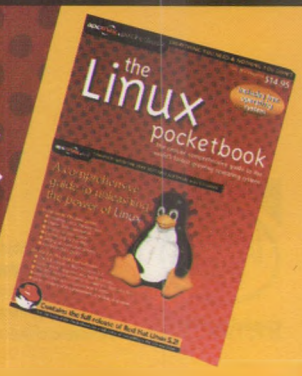




TALKED

"The Apple iMac!? Yes, it's probably a nice piece of machinery, but it's the most piss-weak value-for-money item out there." Sound like rubbish to you? Then get into **apcmag.com**'s always-lively discussion forums and disagree, now.
http://apcmag.com/interactive/

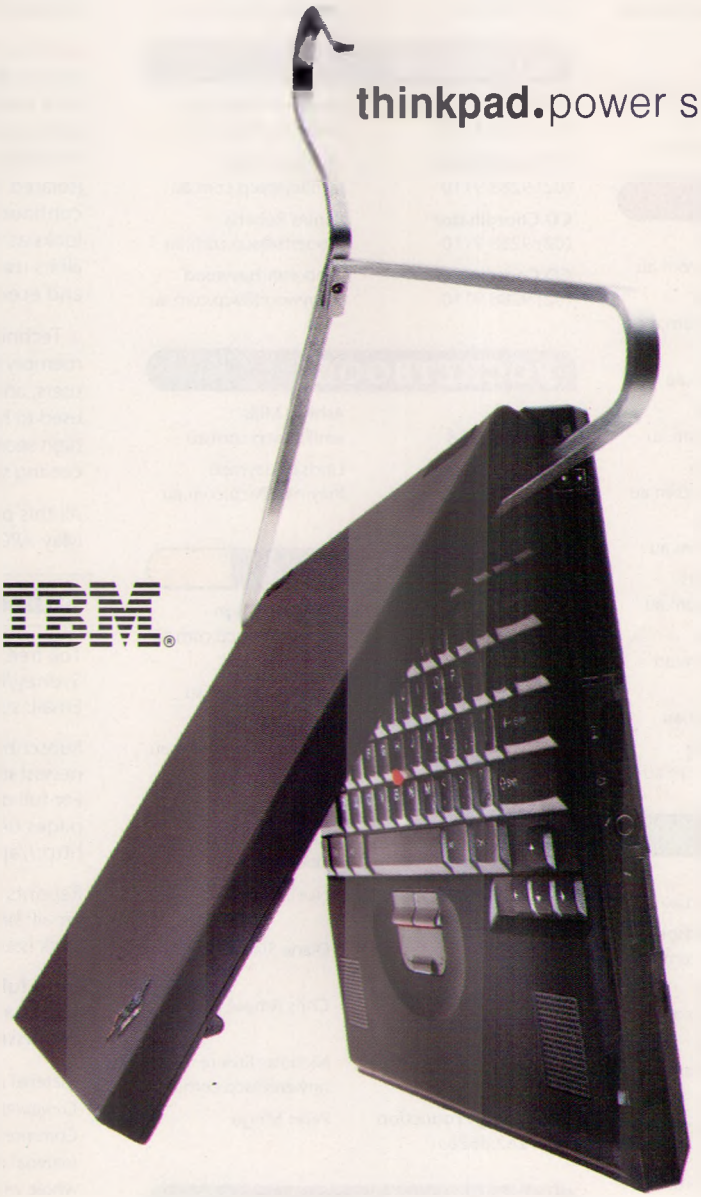
ninemsn

apcmag.pocketbook
EVERYTHING YOU NEED AND NOTHING YOU DON'T
the Linux pocketbook
Install Linux the easy way and make the most of your system with the Linux Pocketbook. Includes the full release of the Red Hat Linux 5.2 operating system on the cover CD!


Order online at http://apcmag.com/shop/ or phone 1800 252 515 and quote APLX98. Free home delivery.

thinkpad 600	price	power	bytes	media	power suit	e-business tools
	$7,055*	Intel® Pentium® II processor 300MHz	5.1GB hard drive 64MB memory	13.3" TFT display cd rom or dvd w/srs 3D sound swappable bays	ThinkPad 600. The best of light weight and high performance, all in a 2.3kg design statement and a mere 36mm thin.	

thinkpad.power suit



IBM®

intel inside
pentium® II

*Price listed for Model 264545A which includes Intel® Pentium® II Processor 300MHz, 64MB SDRAM memory, 5.1GB EIDE Hard Drive, 24X-10X CD ROM and 56kbps integrated fax modem. **Price is Estimated Street Price including sales tax. Individual Reseller Prices may vary.** Prices are subject to change and do not include delivery. MHz denotes microprocessor internal clock speed only; other factors may also affect application performance. 2.3 kg is travelling weight. With CD-ROM drive, battery and hard drive, weight is about 2.5kg. Actual weight may vary. PC's referenced in this ad ship with an operating system. ThinkPad and IBM are registered trademarks of International Business Machines Corporation. The Intel Inside Logo and Pentium are registered trademarks of the Intel Corporation. All other product and service names may be registered trademarks or trademarks of their respective companies. © 1999 IBM Australia Limited. ACN 000 024 733. All rights reserved. SOMPC417

APC GROUP

Editor-In-Chief Jeremy White
(02) 9288 9113 jwhite@acp.com.au

Managing Editor Richard Rodrigues
(02) 9288 9123 rrodrigu@acp.com.au

Creative Director Darren Waldren
(02) 9288 9127 dwaldren@acp.com.au

Business Development Manager New Media Matt Bateman
(02) 9288 9192 mbateman@acp.com.au

New Projects Manager Helen Duncan
(02) 9288 9105 hduncan@acp.com.au

Editorial Assistant Laura Kane
(02) 9288 9123 lkane@acp.com.au

EDITORIAL

Editor Helen Dancer
(02) 9288 9163 hdancer@acp.com.au

Senior Editor Michele Roach
(02) 9288 9123 mroach@acp.com.au

Senior Editor Steven Fear
(02) 9288 9121 sfear@acp.com.au

Technical Editor Nathan Taylor
(02) 9288 9175 ntaylor@acp.com.au

Senior Writer Simon Vandore
(02) 9288 9130 svandore@acp.com.au

Canberra Correspondent Selina Mitchell
0419 211 483 smitch@acp.com.au

Melbourne Editor Stephen Withers
(03) 9823 6344 swithers@acp.com.au

Technical Reviewer Josh Mehlman
(02) 9288 9160 joshm@acp.com.au

Technical Reviewer Darren Ellis
(02) 9288 9115 dellis@acp.com.au

Technical Assistant Claudius Kumar
(02) 9288 9110 ckumar@acp.com.au

PRODUCTION

Chief Sub-Editor Kevin Pyle
(02) 9288 9125 kpyle@acp.com.au

Sub-Editor Vanessa Richardson
(02) 9288 9122 vrichard@acp.com.au

Sub-Editor Claire Waddell
(02) 9288 9177 cwaddell@acp.com.au

Sub-Editor Glenn Phillips
(02) 9288 9126 gphillip@acp.com.au

Artist Valery Soriano
(02) 9288 9190 vsoriano@acp.com.au

Artist Niki Creed
(02) 9288 9123 ncreed@acp.com.au

Web Manager Alex Kidman
(02) 9288 9152 alex@acp.com.au

CONTRIBUTORS

Contributing Editors Jeremy Torr

Contributors Jeremy Horey, Bruce McCabe, David Nourse, David Braue, Michael Smith, Ari Weisz-Koves, Gareth Jones, Daniel Rutter, James Morris, Christopher Relf, Kieran McNamee, Cathie Kennedy, Lachlan Botticchio

NEWSWIRE

Editor Angus Kidman
(02) 9288 9172 akidman@acp.com.au

Deputy Editor Roulla Yiacoumi
(02) 9288 9104 ry@acp.com.au

Senior Journalist Josh Gliddon
(02) 9288 9116 jgliddon@acp.com.au

Journalist William Maher
(02) 9288 9161 wmaher@acp.com.au

CD TEAM

CD Editor Andrew Broadhead
(02) 9288 9109 andrewb@acp.com.au

CD Coordinator Andrew Colley
(02) 9288 9110 acolley@acp.com.au

CD Coordinator James Roberts
(02) 9288 9110 jroberts@acp.com.au

CD Coordinator Deborah Haywood
(02) 9288 9110 dhaywood@acp.com.au

POCKETBOOKS

Editor Ashton Mills
(02) 9288 9188 amills@acp.com.au

Associate Editor Lindsay Hayman
(02) 9288 9132 lhayman@acp.com.au

ADVERTISING

National Advertising Mgr Mark Harrison
(02) 9288 9120 mharriso@acp.com.au

Senior Account Manager Sumit Roy
(02) 9288 9143 sroy@acp.com.au

Senior Account Manager Alison Watson
(02) 9288 9149 awatson@acp.com.au

Account Manager Justin Cain
(02) 9288 9157 jcain@acp.com.au

Vic & Tas Sales Manager Julie Dominguez
(03) 9823 6382 jdominguez@acp.com.au

Sales Qld Noel Fitzpatrick
(07) 3000 8500

Sales WA Diane Slade
(08) 9481 4127

Sales SA Chris Arnoul
(08) 8361 9999

Marketplace Nicholas Riviere
(02) 9282 8908 nriviere@acp.com.au

Advertising Production Peter Slingo
(02) 9282 8626

PUBLISHING

Group Publisher John Alexander

Managing Director Colin Morrison

General Manager Computer Publications Michael Udabage

Group Sales Director David O'Sullivan
(02) 9288 9158 dos@acp.com.au

Marketing Manager Stephen Dolan
(02) 9288 9164 sdolan@acp.com.au

Marketing Projects Manager Heather Milley
(02) 9288 9162 hmilley@acp.com.au

Coming up

- Reviews: When it comes to reviews, our May issue will be an Internet special, as the *APC* Labs team test 25 ISPs and a stack of V.90 external modems. Find out how to get the best Internet experience possible by choosing the right ISP and modem.
- Will technology help revive regional and remote Australia? There's no doubt that rural areas have been hit hard by a long-term decline in their economic bases. However, Australia's vast distances and isolated rural areas may no longer continue to pose problems. Selina Mitchell looks at whether the Internet will provide all its users with an equal chance at social and economic success.
- Technical: We'll analyse developments in memory technology and the impact on users, and Web server farms — installations used to host multiple sites which feature high security, automatic failover, built-in cooling systems, generators and so on.

All this plus news, views, CDs and more in May *APC*, on sale April 22.

Subscription information

Toll free: 1800 252 515
Sydney/international: 612 9260 0000
Email: subsquery@acp.com.au

Subscribe and pay 25% less than the newsstand price. One year for only $65. For full details see our subscription ad on pages 64 to 65 or visit http://apcmag.com/shop/

Reprints (02) 9288 9164 or email: hmilley@acp.com.au
Back issues (02) 9288 9123

For a full listing of submission information, contact details and back issues, please see page 184.

Material contained within *Australian Personal Computer* is protected under the Commonwealth Copyright Act 1968. No material may be reproduced in part or in whole without the written consent of the copyright holders.

Standard subscription rate:
Australia $65 per annum.

Distributed by Network Distribution Company, 54 Park Street, Sydney, 1028.
Telephone: (02) 9282 8777

Australian Personal Computer is published by ACP Computer Publications, a division of ACP Publishing Pty Ltd (ACN 053 273 546)

Printed by Hannanprint Pty Ltd.



Whatever's in your head, you'll find it on Big Pond.

Big Pond. Internet Services

If you can imagine it, you'll find it on Telstra ***Big Pond***® Home. With a premium 56K compatible network featuring the latest V90 technology[1], you'll be able to travel further and discover more. Cutting edge technical expertise and commitment to service guarantees a mind expanding experience. Little wonder we were voted "Editor's Choice ISP" by Australian Personal Computer in 1998.

Tap into the net with a free[2] 50 hour trial. Simply load the CD on the cover of this magazine, or visit ***www.bigpond.com*** Big Pond. Big Possibilities.

Telstra

Making life easier™

1 Actual data transfer speed may be limited by the capabilities of your phone line. 2 Trial consists of 50 hours of access in your first month of membership. Normal telecommunication charges apply. Registration requires a valid credit card. Unused hours are not rolled over into the following month. ISDN and Rural Connect access not included. ®Registered trade mark of Telstra Corporation Limited ACN 051 775 556. ™Trade mark of Telstra Corporation Limited. PURE CREATIVE TBPH518A

Advertising index

3M	53	Gateway	70, 71, 72,	Mira	121	Edge	156
AES	92		73, 74, 75	MSI	88		
AMD Distribution	133	Gigabyte	63	NineMSN	93	**PC SUPERMARKET**	
American Power	97	Hallmark	119	Nortel		Dietner	157
ASP	125	Hearne	114	Northern Territory Tourism	59	City Software	158, 159
Beyond	98	Hire International	111	Officeworks	39	New Reality	
Blue Ridge	109	HP	23	Oki	79	Resources	160, 161
Centra	94	IBM	11,13, 37, 55	OzEmail	2&3	CX Computers	162
Compucon	33	Intel	21	Pioneer	199	Mail Order Software	163
Creative Pacific	35	Internet Group	46, 47	Servex	9, 30, 61	Dragon Dictate	164
Danware	83	Iomega	25	Sony	5, 85, 107	NASA	165
Dell	IFC, 29, 101, IBC	IPS	185	Synnex	137	Forte	166
D-Link	16	Kodak	43, 45	Telstra	15	Sigmacom	167
Dymocks	49, 50, 51, 52	Macase	117	Westan	19	Australian Corporate	
Dynalink	196	Magtron	106			Recyclers	169
E-Store	131	MCT	151	**CHANNEL**		Corporate Software	170, 171
Epsco	123	Micrografx	87	AVO	153		
Epson	27	Microgram	149	Protac	154, 155	**MARKETPLACE**	**172-183**

Modems

EXPERIENCE THE INTERNET LIKE IT WAS MEANT TO BE.

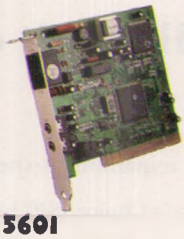
PCMCIA 10/100Mb LAN & 56k Modem PC Card
RRP $389 EX TAX* DMF-560TX

The perfect solution for LAN/WAN applications in one PC card. This multifunction PCMCIA card combines Ethernet/Fast Ethernet LAN and the power of a V.90 K56 flex Fax/Modem.. The DMF-560TX PC Card allows fax/modem and network communications to be carried out at the same time. As a result, users can send faxes from a server, receive faxes over the modem or access the internet and access network resources over the network all at the same time.



DFM-560

Also Available



DFM-560I



- 10/100Mb Auto sensing LAN port
- V.90 K56 Flex fax/data/modem
- Rockwell Chip Set
- Uses only one PCMCIA type 2 slot
- Concurrent use of LAN and fax/modem
- Simple Plug and Play installation
- Supports Windows 95/98 and NT and others
- Fully Approved A-Tick,C-Tick, and Telepermit
- Compatible with Acer, Compaq, Digital, IBM, NEC, and Toshiba Notebooks

External 56K Voice/Data/Fax Modem
RRP $149 EX TAX* DFM-560
Internal PCI 56K Voice/Data/Fax Modem
RRP $125 EX TAX* DFM-560I

K56 FLEX V.90 CONNECT with Rockwell

Contact your nearest Distributor
Or
Contact D-Link on
1800 177 100 Toll Free Australia
0800 900 900 Toll Free New Zealand
www.dlink.com.au
info@dlink.com.au

D-Link®
Building Networks for People

D-Link is a registered trademark of D-Link Corporation Specifications are subject to change without notice
All other Trademarks are the property of their respective owners * Prices are Recommended Retail ex Tax in Australian Dollars

Newswire

MORE, MORE, MORE

90 million PCs and counting

Global PC sales topped 90 million units in 1998, with sales in the US and Europe offsetting market declines in the troubled Asian region.

Industry research firms IDC and Dataquest both issued their sales estimates for the year in late February. Dataquest (a division of Gartner Group) estimated total sales at 92.9 million. IDC posted a slightly more conservative estimate of 89.9 million.

The two firms also agreed on the rankings of the top five sellers. Compaq took top position with 13.8% of total sales, followed by IBM, Dell, Hewlett-Packard and Packard Bell NEC. Of the five major players, Dell had the largest increase in sales; its 7.9% of sales is now just shy of IBM's 8.2%.

The US preference for direct marketing of PCs — a trend Dell is now replicating worldwide — saw Gateway take third place in the US rankings. The fact that this was not enough to put it into the global top five indicates the increasing importance of non-US figures to global sales

Continued on page 18

BUY, SELL, SPLIT, ACQUIRE

Tech business in top gear

There was a time when the technology business paid more attention to technology than business, but continued frenetic stock market interest in IT and a perception of wealth in the making has led many local businesses to pay as much attention to fundraising activities as product development. Recent events, however, show that attempts to make your next million from savvy tech business dealings aren't always successful.

For some firms, listing on the stock market proves to be an easy precursor to wealth. Local Internet media company LibertyOne is looking to exploit its continued success on the Australian Stock Exchange (ASX) with a 4:1 share split. LibertyOne floated in December last year with an initial issue of 20 million shares, which represented 25% of the company. The shares have since skyrocketed in value; they closed on the first day at $3.06 after opening at $2, and have gone above $4.40 since. LibertyOne also plans to take advantage of the US mania for Net stocks by establishing an American depository receipt (ADR) program to allow its shares to trade overseas.

Other listed companies are also sharing their wealth. Niche telco Davnet has announced that it will pay about $12 million to acquire veteran ISP Magna Data. Magna Data will continue operating as a separate company following the deal. The ISP has revenues of $8 million and an annual profit of about $1 million, officials said. Rumours of an impending deal with Davnet circulated in the industry for some time, although Magna Data officials denied that a deal was in the offing only a week before the merger.

Others, though, have had a tougher time selling their merits as potential acquirers. After a prolonged saga, local accounting firm Solution 6 was forced to withdraw a merger offer to Canadian legal practice management software vendor PC DOCS. Solution 6 had proposed a capital share swap of 4.35 Solution 6 shares for every PC DOCS share, valuing the combined company at about $250 million.

PC DOCS, which had already turned down a private merger proposal, rejected the offer, describing it as closer to a takeover of Solution 6 by PC DOCS than a merger.

Continued on page 18

Can't help ourselves

IN OTHER MAJOR TECH BUSINESS DEVELOPMENTS THIS MONTH:

Online firms in float frenzy. Both the ABC and PBL are planning to float their online businesses. Page 22

Game for a merger? Two of Australia's most prominent games companies have become takeover targets. Page 26

Bourseware. Will Net investors learn from the lessons of history before the bubble bursts? Page 67

For up-to-the-minute business and finance news, see http:/newswire.com.au/cashbook/

apcmag.com.au Newswire.

This month on Newswire!

The **Newswire** Web site is continuing to grow as more technology users discover Australia's premier IT news service. We'd like to thank you for your support, and the many helpful feedback emails you've sent.

Recent stories posted on **Newswire** that you won't find anywhere else include:

- **ASIC bans PC director**
 http://newswire.com.au/9902/asdir.htm
- **Business tax review misses the IT point**
 http://newswire.com.au/9902/bit.htm
- **Why Web sites don't respect privacy**
 http://newswire.com.au/9902/webpriv.htm
- **Aussie firm ports Linux to mobile chip**
 http://newswire.com.au/9902/moblin.htm

There are also our regular columns including **Product Launch, Cashbook** and **Walter Wombat.**

The first dedicated Australian technology news Web site, **Newswire** provides a continuously updated, 100% local service that has been designed from the ground up to take advantage of the facilities of the Web. It's all online at **http://newswire.com.au**; the page is also accessible from the main **apcmag.com** site.

AUSTRALIA'S TECHNOLOGY NEWS

1998 handheld sales

COMPANY	1998 SHIPMENTS (THOUSANDS OF UNITS)	MARKET SHARE (%)	GROWTH (%)
3Com	1,600	40.1	57.1
Sharp	828	20.8	67.4
Psion	519	13	30.9
Hewlett-Packard	270	6.8	12.1
Philips Mobile	177	4.4	150.4
NEC	170	4.3	1,004.5
Others	424	10.6	80.9
Total	3,988	100	61.4

Source: Dataquest

90 million PCs and counting

Continued from page 17

tallies. The US now accounts for under 40% of the world's total PC sales.

Australia, India and China led the increase in PC shipments for the Asia-Pacific region in the fourth quarter of last year. Preliminary findings from IDC found PC shipments in the region were up 7% to 2.89 million units in the fourth quarter of 1998.

The biggest increase last year came from India, which was up 31.5% to 776,000 units. China was close behind, up 29.5%, and it accounted for the most units shipped in the region in 1998, 3.9 million. Australia also had a strong showing; it was up almost 12% to 1.7 million PCs.

IDC listed Compaq/Digital, IBM, Legend, Hewlett-Packard and Acer as the top five vendors in the Asia-Pacific region. Legend, a relatively unknown name in Australia, was the dominant brand in the Chinese PC market.

In other market figures released by Gartner Group, Apple reclaimed the number five spot in the Australian market. Compaq led the field on 13.7% (down from the last survey), followed by IBM, Hewlett-Packard and Dell. In total, 1.909 million units shipped in Australia in 1998, according to Gartner Group, slightly less than the anticipated figure of 2 million.

Handheld heaven

While PC sales continue to dominate, handheld devices are also continuing to grow at a phenomenal rate. Almost 4 million units shipped worldwide in 1998, an increase of 61.4% over the previous year (see table above).

According to Dataquest, 3Com led the way in shipments — its PalmPilot accounting for 1.6 million of the total units shipped, and a dominant 40.1% market share. Sharp came in second, with 828,000 units (20.8% share).

Dataquest found the Palm operating system — used on the 3Com PalmPilot and also licensed to other companies, including IBM — was the dominant OS, followed by Windows CE (25%) and EPOC32 (13%).

However, the news wasn't so good in the high-performance sector. Silicon Graphics' poor performance has resulted in a dramatic slowdown in the worldwide market for high-performance computers in 1998.

Roulla Yiacoumi and William Maher

Tech business in top gear

Continued from page 17

Solution 6 general manager of global sales and marketing, Richard McLean, told *APC* that the company was disappointed by PC DOCS' decision. "We're confident that the synergies between the two companies are compelling," said McLean. "If the proposal had been brought to an offer, we're sure there would have been long-term value for the shareholders of both companies."

Other takeover offers also took some time to push through. MCI WorldCom's plan to take over ISP OzEmail faltered when it failed to reach a required 75% acceptance level by the deadline of its initial offer. An extension to February 24 eventually saw the telco reach the required numbers.

There was an equally epic saga involved in selling off Internet service provider Connect. Several companies had hoped to take it over, but AAPT Telecommunications emerged as the victor. The investment arm of the National Australia Bank, National Australian Investment Capital Limited (NAICL), sold its 41.13% investment in Connect to AAPT for $18.3 million, and modem manufacturer Sirius offloaded its 17.7% shareholding to AAPT for a sum exceeding $4 million.

Connect will now operate as a wholly owned subsidiary of AAPT. "When coupled with AAPT's rollout of CBD fibre and other infrastructure-based initiatives, the full acquisition of Connect makes compelling sense," said CEO Larry Williams. "Many people have wanted to purchase Connect — Australia's third-largest ISP — however, under the total control of AAPT it will capture the full value of the convergence of telephony, data and video which leads to multimedia."

Sirius had hoped to sell its 17.7% stake to US Internet service provider PSINet, but that deal fell through after an agreement with AAPT could not be reached.

Angus Kidman, Josh Gliddon, William Maher and Roulla Yiacoumi

EMAIL! EMAIL!



READ ALL ABOUT IT!

Newswire's daily email news bulletin service has now commenced operation. The Newswire Bulletin Summary is a concise daily email roundup of the major technology developments. It provides you with an independent summary of key events, as well as links to every story published on Newswire during the day. The Bulletin Summary is rendered in plain text so you can view it with any email client, and provides a one-stop overview of the day's key news. Of course, Newswire will continue to publish breaking news as it happens on our Web site at **http://newswire.com.au**

To subscribe to this totally free service, just fill out the form at **http://newswire.com.au/subscribe/**



THE FUTURE IS HERE TODAY!



TWISTER

V.90/56K FLEX

THE TWISTER 56K FAX / MODEM IS THE LATEST IN COMMUNICATIONS TECHNOLOGY. IT COMES IN ALL FORMATS AND WILL PROVIDE YOU WITH ALL YOUR INTERNET AND COMMUNICATION NEEDS. GET CAUGHT UP IN THE TWISTER AND TRAVEL AROUND THE WORLD AT WARP SPEED.

Xstreama

Distributed by Westan Email www.westan.com.au VIC Ph (03) 9563 6775 Fax (03) 9563 6836 NSW Ph (02) 9417 2133 Fax (02) 9417 2311
QLD Ph (07) 3846 5522 Fax (07) 3846 5544 S A Ph (08) 8351 6600 Fax (08) 8351 6622 W A Ph (08) 9388 1812 Fax (08) 9388 1813

westan

OZ INNOVATION

Squeezing the light fantastic

Imagine a parade of soldiers marching in lockstep, moving in the same direction at the same speed. In their matching uniforms, they look like a homogenous entity.

But if you took a closer look, you would notice that not all the soldiers are of the same height and that their arm movements aren't always in sync. The parade still looks neat, clean and tidy, and the sergeant at arms is probably pleased, but things could still be better.



Laser light, with its uniform wavelengths, is a lot like the parade of soldiers, but instead of varying heights and out-of-sync arms, it has static and background noise.

Low-power, low-performance applications such as CD players aren't really bothered by this photonic crackle and hiss because they're reading from a relatively low-density medium. It's the high performance stuff, like long-distance fibre-optic communications, that suffers from reduced range and density due to noise.

A research group led by Professor Hans-Albert Bachor at the Australian National University (ANU) in Canberra has taken a massive step towards reducing the noise in laser light with the development of what's been dubbed 'squeezed light'.

Squeezed light uses a specially developed crystal to break the laser into two quantum-correlated beams. By subtracting the beams from one another, the overall level of noise and the magnitude of frequency fluctuations within the laser beam are reduced.

Bachor said that his team has managed to reduce the level of noise by a factor of four. In theory, this should mean that communications cable should be able to carry four times more information, or that a laser writing to a suitable optical media would be able to achieve a 400% improvement in the density of information written.

Although the current squeezed-light laser is large enough to fit on a benchtop, Bachor anticipates that commercial versions, with form factors similar to current lasers, could be developed within four years. The ANU team is currently in negotiation with several companies interested in developing the technology.

Josh Gliddon

NET GAIN

Online trade beckons for Oz

The value of global Internet commerce is expected to equal the size of the whole Australian economy by 2001, making the development of an online trade strategy a major priority, according to a new Federal Government report.

The report, *Driving Forces on the New Silk Road*, examines the growth of the Internet and its implications for Australia's trade strategy.

As with other areas of electronic commerce, the report suggests the role of government should be to support private enterprise in the development of services. "The private sector has a clear role to play in developing online opportunities and using the Internet to advance offline trading interests," the report states. "This is fundamental: governments must give business room to respond to the opportunities and challenges presented by Internet commerce."

It adds that the government has a responsibility to ensure Australia is equipped to thrive in an information economy environment. As such it must concentrate on three things: providing world-class telecommunications networks that are capable of meeting future demand; dealing with the intellectual property aspects of developing and diffusing new technologies; and providing affordable education and training.

The government must facilitate international trade through the provision of timely, relevant and accessible information, the report states. "Key challenges are to promote Australia as a rich source of intellectual property and reduce the cost of border administration.

"Australia is working to achieve an international balance between unfettered markets and the need for a few limited and non-restrictive ground rules for electronic commerce, taking into account the needs of big suppliers of information technology and users of all size.

"An online trade strategy needs to draw and build upon Australia's existing trade strategies and to complement the national online strategy. Online trade is new, but the basic objectives of online and offline traders are the same. They want secure and sustainable access to markets. The fundamentals of doing business successfully online and offline also are much the same."

Selina Mitchell

News Roundup

- New motoring 'supersites' are set for a demolition derby in a race to lure buyers. NineMSN's CarPoint and Fairfax's Drive.com.au both hit the market in March with similar business plans and identical goals. Goal number one is to sign up car dealers willing to take sales leads from the respective sites. Once the dealers are on board, the real battle — luring enough prospective buyers to make the investment viable — begins. (NineMSN is a joint venture with *APC*'s publisher Australian Consolidated Press.)
- A new software tool from Ericsson aims to significantly improve Web access speeds for mobile data network users, by shrinking the size of Web pages. The WebOnAir Filter Proxy, soon to be available in Australia, uses a variety of techniques to reduce the amount of data in a Web page, while retaining legibility. It slims down the HTML source by removing white space, comments and other unnecessary constructions, converting the HTML code to lower case, and then compressing the result.
- Microsoft Australia has confirmed plans to offer its own online software shop, but officials have warned that the project will not begin in the near future. Director of channels, Geoff Wright, said the company would watch how a newly launched US shop fared before committing resources to a local ecommerce site.

Remote control for your network.



Intel® Management Adapters enhance PC and server management through remote control. Keeping you off your feet, and on your toes.

IT managers do plenty of walking every day, from office to office, PC to PC. Not anymore. Intel's new PRO/100 family of adapters help enable remote management and troubleshooting for desktops, servers and mobile PCs. With features like Wake on LAN*, you have the power to turn on, access and update systems – all from a single console. So tasks such as backup, virus scans and software upgrades can be performed across the network, even unattended and after hours. It's yet another way Intel is helping to enhance your PCs and servers. For more details, and to locate an Intel® Authorised Solution Provider, visit us on the Web.

intel Authorised Solution Provider For 1999

► intel.com/au/network

intel

© 1999 Intel Corporation. All rights reserved. Intel is a registered trademark of Intel Corporation. *All other trademarks are the property of their respective owners. ISN0121

COULD WE CARE LESS?

40% of firms have no Y2K plans

While virtually every business in Australia is now aware of the Y2K problem, only 60% plan to do anything about it, and just 13% have completed repairs and testing, a new study by the Australian Bureau of Statistics (ABS) has found.

Figures released by the ABS found that 93% of all businesses knew of the Y2K problem. Businesses of fewer than five people showed the least awareness at 91%, while no companies with more than 200 employees had not heard of the problem, and only 1% of those planned not to take remedial action. In general, small businesses showed much less concern about the Y2K problem.

An average of 30% of businesses that planned to do Y2K work had not yet done so in October last year when the study was conducted, and 22% did not expect it to be finished until the second half of this year.

A particular area of concern is contingency plans for Y2K failures, which have been made by just 11% of businesses overall. Only large businesses with 200 or more employees seem to have undertaken contingency planning; 57% of such companies have done so.

Supply-chain issues could also be a problem. Only 19% of businesses have sought assurances from trading partners that they are also compliant, and that figure is again skewed by the 83% of large companies that have done so.

The figures came just days after laws designed to give companies limited protection against Y2K liability were passed by Parliament. The Year 2000 Information Disclosure Bill 1999 ensures that company statements about Y2K preparedness cannot be used as evidence in subsequent liability suits. The new bill will be in force until June 30, 2001.

In February, the Federal Government also finally caved in to repeated requests that it issue detailed compliance information on its Y2K preparedness. In March, regular reports issued by the government outlining Y2K preparations began to include details of each department and agency's compliance testing and repair activities.

Angus Kidman and Roulla Yiacoumi

Zero Zero — Simon Vandore looks at Australia's Y2K preparations. Page 76

IS IT YOUR ABC?

Online firms in float frenzy

These days, if you're an Australian media company with a Net presence, chances are you're considering floating on the stock market. The Australian Broadcasting Corporation (ABC) is considering joining the ever-increasing line-up of media companies eager to cash in on the Internet stock boom by floating its online operations, and Publishing and Broadcasting Ltd's online division, PBL Online, has also outlined plans for a stock market float. (PBL publishes *APC*.)

A scheme to float the ABC's online activities was proposed in early February by board member Michael Kroger. His suggestion quickly proved controversial, since it would place the national broadcaster under a new set of commercial pressures. While the ABC profits from sales of merchandise through its ABC Shops, that funding is directly returned to the company, which would not be the case if shares of the online operation passed into private hands. Critics also questioned the wisdom of trying to separate online publishing from the ABC's other activities.

PBL is considering a stock market float in a bid to take advantage of the growing interest in Internet stocks.

"PBL is investigating the prospect of floating PBL Online by the public issue of a direct stake in PBL Online and has appointed Goldman Sachs to advise on the opportunities that may exist in such a process," the company said in a statement.

Both moves have been partly inspired by the high prices achieved by other online properties on the stock market. Until recently that phenomenon had been confined largely to the US, but the recent listing of LibertyOne, which plans to develop a local version of the Excite portal, has shown that interest in Net stocks is not confined to Nasdaq.

PBL Online's most visible property is NineMSN, a joint venture with Microsoft. However, in late February it announced a partnership with Internet auction giant eBay to provide a local version of eBay's online auction facilities. The deal will see a customised Australia and New Zealand area of the site launched later in the year.

Fairfax is also said to be considering a plan to float its online operations, although executives have said such discussion is premature.

Angus Kidman

News Roundup

Minister for Communications, the Information Economy and the Arts, Senator Richard Alston, will lead an IT&T trade mission to Israel later this year. "Israeli companies have secured important niche IT&T markets around the world, particularly in Europe, and Australian firms can learn from Israel's success," Alston said. He added that Israeli companies could also learn from Australian firms' knowledge of and access to the Asia-Pacific region. The primary focus of the trip is on IT&T companies — including ecommerce and Internet security, computer telephony integration, voice recognition and satellite technology — but joint venture activities will be encouraged in all fields, said Alston.

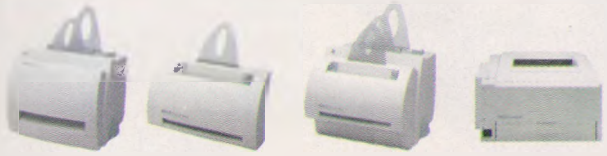
The Web habits of Australian IT professionals differ considerably to those of the general population, a new survey has found. Research by national job agency ITManpower found that career and recruitment sites were the most popular among local IT professionals. Of the 100 applicants randomly chosen by the agency, 58% said they accessed information about jobs on the Web. However, job hunting is not nearly as popular among the general Web-browsing public.

For complete versions of these and many other stories, be sure to check into **http://newswire.com.au**.



You'll never have to leave your desk with the HP LaserJet 1100A Printer • Copier • Scanner.

The HP LaserJet 1100A gives you fast, personal document management within arms reach. Take the versatile HP LaserJet 1100 printer, snap on the optional HP copier/scanner accessory and you get all in-one HP LaserJet 1100A. With the HP LaserJet 1100 printer's new HP JetPath technology, the printer takes on additional capabilities. Everything works together, so there are no cables or power cords to connect. Imagine, you'll never have to rely on shared equipment again. You save time, your work goes smoother, and you'll cut down on carpeting costs. So, make tracks to your nearest HP dealer today.



Desktop Solutions

HP LaserJet 1100 Printer
The fast personal laser printer with add-on capabilities.

HP Copier/Scanner Accessory
Optional attachment exclusively for HP LaserJet 1100.

HP LaserJet 1100A Printer
The personal laser printer, copier and scanner at your desktop.

HP LaserJet 6P/6MP Printer
The full-featured personal laser printer.

HEWLETT PACKARD
Expanding Possibilities

For the name of your nearest HP Dealer phone 1800 339 862 or visit our website on www.hp.com

HPC 1067/B/R



TALK, TALK

Chat room caught in court battle

The publisher of local financial site The Chimes has blasted the Australian legal system after the Federal Court ordered him to remove an online chat room.

Stephen Lewis Matthews appeared before Justice Deirdre O'Connor in late February, after the Australian Securities and Investment Commission (ASIC) claimed he was breaching Corporations Law by carrying on an investment business without a licence. ASIC lawyers succeeded in obtaining an interim order restraining Matthews from publishing investment advice on the Chimes site, and from allowing others to do likewise on the site's chat area.

"I am not a business and I am not offering advice," an angry Matthews told *APC*. "The judge accepted none of my arguments."

Matthews removed the facility, but posted a notice on his site saying the chat facility would soon resurface on a US domain — out of the reach of Australian law.

"I haven't fully considered the cross-border implications, but if it's a .com.au site, ASIC can apply to have my ISP shut down. I imagine it would be a lot harder to shut down a large US provider."

Matthews said the ruling was an insult to every Net user and one which had negative implications for the whole industry. "We are a laughing-stock in the US," he said. "Someone has to acknowledge the right of Net users to have information delivered in this fashion. Stockmarket research, broking, and advice will be a major beneficiary of the Net and we should be fostering this growing market.

"How could it be ruled that I and others were providing investment advice? There is no established identity of those people posting comments in the forum. It's simply bar talk, hearsay, rumours and speculation.



"We are a laughing-stock in the US."

— Stephen Matthews

"ASIC and the Australian Stock Exchange are trying to prove that I traded shares. But they won't find anything, because I didn't".

Matthews said he would be seeking the "proper authority" required by ASIC, as a matter of course. "To get a dealer's licence would take some weeks, but to hold the proper authority would take a couple of hours."

The Chimes case was due to come before a new judge as *APC* went to press. "I will be better prepared and I may have a solicitor in tow," he said. The new judge has the power to overturn the original ruling.

Matthews declined to comment on what he thought his chances were for a better verdict. "I thought I was going to win the [first] hearing," he said. "I thought I was going to laugh ASIC out of court."

Roulla Yiacoumi

★ EURO RSCG OM0035/A



Don't be sucked-in by its ice-blue casing.

Be sucked-in by its cool USB connection.

We wouldn't want you to choose the new Iomega Zip USB drive on appearance alone, (although its transparent ice-blue casing is very cool). The other cool attraction is its USB connection for your iMac or Windows 98 PCs. With this easy, lightning fast connection of the future, you can interchange the Iomega Zip USB drive with other USB devices without restarting your computer. It's also 100% compatible with Zip 100MB disks so you can save and store all your important files. The new Zip USB drive doesn't only look cool, it also does cool things. Phone 1800 624 929 or visit www.iomega.com

Your life is safe here.

iomega

Australia's appetite for computer gaming continues to expand — but can we support a local industry?

Game for a merger?

If there's one fact that epitomises the reality of developing games software in Australia today, it's that very few of the major games developers working in Australia today grace their Web site with a '.au' extension.

The news that two of Australia's most prominent developers and distributors, Beam and Sega Ozisoft, are planning to sell off their gaming interests indicates the difficulties local developers and publishers face in the tightly fought gaming market. Many companies have successfully developed and launched titles worldwide, but they have done so by concealing their Australian identity, rather than promoting it.

Beam has announced that it is in advanced negotiations to sell off its games development and publishing business. The identity of the purchaser had not been disclosed when *APC* went to press, but chairperson Alfred Milgrom told *APC* that the potential buyer is an overseas company. Meanwhile, Sega Ozisoft has signed a deal valued at up to $10 million with French developer Infogrames that could lead to a complete takeover by 2003. Infogrames has also been named in unconfirmed reports as the buyer of Beam's games division.

Despite the exodus, industry observers are largely confident that other gaming houses will survive. "From the perspective of young game designers, artists, programmers and all the rest of it, the net end result is no different," said Ben Mansill, editor of gaming magazine *PC PowerPlay*.

In particular, the takeover of Ozisoft is likely to have little impact, since Infogrames wants to use its distribution network to increase its share of the local market. And while Beam's decision to exit games publishing will see some well-known brands such as Melbourne House move overseas, it isn't abandoning gaming altogether. Its Hotgames site (pictured), which has been attracting large audiences with its mixture of games reviews and hints, will be developed further.

The success of Hotgames reflects Australia's growing appetite for gaming. An even stronger indicator is that Sony recently reported the sale of its millionth PlayStation in Australia. The PlayStation's market dominance has created problems for Sony as emulators for its systems emerge (see 'The emulation challenge').



"In terms of importance for international marketing, Australia has always been either number two or number three. We are definitely in the top three," Mansill said. "There are only a handful of games companies left that do not have a presence in Australia."

Nonetheless, the local gaming industry hasn't yet developed to the point where any of the major technology research firms track and analyse it extensively. Nor has its existence permeated through to most buyers.

One challenge faced by all games developers, local or otherwise, is the need to constantly produce new and successful titles. Because games have a long and expensive development cycle, releasing even one flop can have a major impact on a small company.

On the other hand, a single well-developed game can promote a small firm to international prominence. Ratbag Games, based in Adelaide, has had a good reaction to its recently released Powerslide racing game, attracting positive reviews.

However, despite a well-developed Web presence, Ratbag is relying on distribution by GT Interactive to get the product into the market. And at the end of the day, that's not likely to concern anyone other than those who would like to see Australia's industry receive more prominence.

"No games are marketed in terms of country of origin. It's something that is irrelevant to gamers," said *PC PowerPlay*'s Mansill. "If it's made in Australia or made in America, so what; it's the game that matters."

Angus Kidman, William Maher, Stephen Withers and Roulla Yiacoumi

The emulation challenge

Typically, Sony's biggest rival in the computer gaming market for its PlayStation console has been its main hardware sales competitor, Nintendo. However, recently it has been paying more attention to another emerging market sector: PlayStation emulators.

An attempt by Sony to sue emulation specialist Connectix over the latter's development of a product known as Virtual Game Station, which allows PlayStation games to be used on Mac machines, failed after an injunction was thrown out of court.

Even before Connectix's product, however, a plethora of non-commercial PlayStation emulators were readily available. The majority of these were developed by individuals interested in the challenges of emulation. However, whatever their motivations, the end result is a product which may represent a threat to Sony's tight control of the PlayStation market, and an opportunity for ethically lax PC users to access pirate copies of PlayStation software.

Probably the best known emulator is PSEmu, a well-regarded freeware package. Keen to avoid piracy accusations, the main PSEmu site emphasises that the software can only be used by owners of a PlayStation console, since it requires a dump of the PlayStation BIOS. However, many users have apparently bypassed this requirement by acquiring illegal copies of the BIOS, which led two of the software's original developers to leave the project.

A similar fate was experienced by PSX 98, a DOS and Linux emulator being developed by Andrew Hogan.

Other prominent emulators include Psyke, which was developed purely for Windows 95 and 98 by Italian developers Giovanni Bajo and Stefano Crosara, and Sope, a Unix PlayStation emulator. Most emulators are still in early development stages, and virtually none can run a large percentage of existing games.

EPS 0319 The HALE Agency



COLOUR PAGES PER MINUTE*.

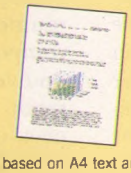
RE-WRITING THE RULES ON INKJET SPEED.

PerfectPicture Imaging System Only the EPSON STYLUS COLOR 900 prints up to an amazing 10 colour pages per minute*– that's one page every 6 seconds. EPSON now have a high-performance colour alternative to personal desktop lasers. Parallel, Serial and USB interfaces for Windows® and Mac™ come as standard. And a variety of optional interfaces allow for easy networking. EPSON's unique PerfectPicture Imaging System incorporates the EPSON Ultra MicroDot™. At 3 picolitres it's the world's smallest ink droplet, in black and colour. Add 1440dpi print technology and the result is superb Photo Quality.

EPSON
THE POWER TO CREATE



EPSON STYLUS COLOR 900



*10ppm based on A4 text and colour graphic pattern in economy mode.

Sydney (02) 9903 9000 Melbourne (03) 9685 6555 Brisbane (07) 3360 0219 Adelaide (08) 8338 4660
Perth (08) 9480 0418. Or visit www.epson.com.au

As USO changes loom, the battle to overtake Telstra remains as difficult as ever.

Tricky times for telcos

Despite the deregulation of the telecommunications industry in 1997, every new player that has entered the market has to face up early to a simple fact: Telstra continues to dominate most sections of communications.

That dominance was reinforced by a recent survey of business and communications managers that found Telstra is the leading supplier of telecommunications services in Australia. The *Australian Telecommunications Business Users Survey 1998-99* by consultancy Amos Aked Swift questioned respondents about voice, data, mobile and Internet services within their organisations. It found Telstra was the dominant provider in every category, including local, national and international voice provisions; local, national and international data; mobile; and Internet (see table).

Following the principle that when you're on top there's nowhere to go but down, plenty of telcos have lined up to attack Telstra, both in competitive markets and via the regulatory process, where the Australian Competition and Consumer Commission (ACCC) is taking an increasingly active role. The most recent battle has been over the universal service obligation (USO), which ensures that all Australians have access to a basic telephone service. Although Telstra implements the physical service to remote and rural areas, all carriers operating in Australia contribute financially via a levy based on overall revenue.

The entire USO concept is set for redefinition shortly, but that hasn't stopped Cable & Wireless Optus and Telstra engaging in a bitter war of words over the topic. Telstra's claim that the true cost of meeting the USO is $1.8 billion has been slammed as "junk in, junk out", by Optus group manager for regulatory affairs, Adam Suckling.

The overall size of the USO is set through commercial negotiation between the carriers, in conjunction with the use of a forward-looking financial model designed by US telco Bellcore. Since 1997, the overall size of the USO has been capped at $250 million.

Suckling's comment refers to Telstra's implementation of the Bellcore model, which requires the use of 'efficient technology' as an input if it's to yield a reliable result. When the model was adopted, however, the carriers were unable to agree on a specified set of inputs, leaving each free to come up with its own end figure. Much of the contention associated with Telstra's $1.8 billion claim arises from its use of copper cable as one of the inputs.

Telstra's market share

Local voice	81.3%
National voice	59.1%
International voice	57.2%
Local data	79.1%
National data	60%
International data	41%
Mobile	60.9%
Internet	22.5%

Source: The *Australian Telecommunications Business Users Survey 1998-99*, Amos Aked Swift

"The inputs [in Telstra's result] were for the use of old infrastructure," said Suckling. "Copper is a stupid, stupid way of servicing these customers in remote and rural areas."

At its core, the USO is designed to protect consumers whose use of a phone doesn't cover the cost of the infrastructure needed to support it. These consumers are primarily in rural and remote regions that, arguably, wouldn't be serviced by telecommunications companies because service provision isn't financially viable.

According to Telstra's figures, the number of customers falling under the provision of the USO has leapt 1,000% between 1991 and 1998 — from 49,000 to 493,000. Optus claims that of the 493,000 customers under the provision, 161,000 can be serviced profitably (thereby removing them from the USO pool). Of the remaining 332,000 customers, 250,000 can be serviced more cheaply using satellite than by extending and maintaining copper networks. The balance of USO-provision customers can be serviced using either copper or wireless local loop, said Optus CFO Norman Gillespie. "The bulk of these customers can be serviced using satellite technology," he said. "The true cost of USO, using efficient inputs, is closer to $178 million."

Cable & Wireless Optus has been running a satellite trial in Western Australia in order to demonstrate the viability of satellite technology to the ACA. The ultimate aim of the trial is a reduction in the USO obligation, and a decision by the Federal Government to open the USO to tender.

Cable & Wireless Optus' Dr Michael Wagg said, "Our question is if this technology is here, available off the shelf, why isn't Telstra using it?"

Telstra's finance director John Stanhope told **Newswire** that the answer was simple: the technology wasn't cheap enough and didn't have the desired quality of service levels. "It's easy to forget that the assessment was made some time ago. We had to make the assessment based on the technology available."

The massive $1.8 billion calculated as the cost of meeting the USO would probably decrease in the next assessment, due to the implementation of new technology, Stanhope said. "We're looking at satellite, we're looking at other technologies, but when the assessment was made, HFC and copper were the only technology that could provide the service levels required.

"I think that the reason Optus is making a fuss about this now is simple," said Stanhope. "It doesn't want to pay the levy."

Telstra now has a new head to help it face the challenge of both USO and an ever-hungry raft of competitors. In February, Telstra announced Dr Ziggy Switkowski, currently the group managing director of Telstra business and international and a former CEO of Telstra archrival Optus, would take up the post of CEO from departing head Frank Blount on March 1. He has been appointed on a five-year contract. Switkowski has ruled out any radical change of direction or policy for telecommunications giant Telstra, saying the company's commitment to data, mobile and value-added service puts it right on track. "I'll be taking a 'steady as she goes' approach," he said.

Josh Gliddon, Angus Kidman and Roulla Yiacoumi

450MHz ROCKETSHIPS AT DOWN TO EARTH PRICES.

FEATURING THE INTEL® PENTIUM® III PROCESSOR 450MHz.



NEW DELL DIMENSION® XPS T450
NEW INTEL® PENTIUM® III PROCESSOR 450MHz

- Mini Tower Chassis
- 512KB Single Bank Pipeline Burst Cache
- 128MB 100MHz SDRAM
- 12.9GB Ultra ATA Hard Drive
- 3.5" 1.44MB Diskette Drive
- 16MB STB nVidia TNT 2X AGP Graphics Card
- Turtle Beach Montego A3D 64 Voice PCI Sound Card
- 4.8X DVD-ROM Drive and Decoder Card with TV out
- Altec Lansing ACS-495 Full Dolby® Surround Sound Speakers with Subwoofer
- 17" Colour Monitor (15.9" v.i.s.)
- Microsoft® IntelliMouse™
- Microsoft® Windows® 98
- NEW Microsoft® OEM Works Suite 99
- NEW Power Game Pack Optimised for Intel® Pentium® III Processors
- McAfee Virus Scan
- 3Com® USR 56K Capable V.90 PCI WinModem
- NEW Microsoft® Elite Keyboard
- 3 Year Limited Warranty
- Free Lifetime Telephone Technical Support

$4,249* plus delivery

or $36 per week**

Upgrade options include:
- 17.2GB Ultra ATA Hard Drive $331
- Turtle Beach Montego II 320 Voice PCI Sound Card $78
- Call for a complete range of upgrades

NEW DELL DIMENSION® XPS T450
NEW INTEL® PENTIUM® III PROCESSOR 450MHz

- Mini Tower Chassis
- 512KB Single Bank Pipeline Burst Cache
- 64MB 100MHz SDRAM
- 8.4GB Ultra ATA Hard Drive
- 3.5" 1.44MB Diskette Drive
- 8MB ATI® EXPERT 98D 3D AGP Graphics Card
- Turtle Beach Montego A3D 64 Voice PCI Sound Card
- 40X Variable EIDE CD-ROM Drive
- Harman Kardon HK195 Speakers
- 17" Colour Monitor (15.9" v.i.s.)
- Microsoft® IntelliMouse™
- Microsoft® Windows® 98
- NEW Microsoft® OEM Works Suite 99
- NEW Power Game Pack Optimised for Intel® Pentium® III Processors
- McAfee Virus Scan
- 3Com® USR 56K Capable V.90 PCI WinModem
- 3 Year Limited Warranty
- Free Lifetime Telephone Technical Support

$3,339* plus delivery

or $28 per week**

Upgrade options include:
- 12.9GB Ultra ATA Hard Drive (7,200rpm) $233
- 19" Colour Monitor (17.9" v.i.s.) $360
- Call for a complete range of upgrades

DELL DIMENSION® XPS T450
NEW INTEL® PENTIUM® III PROCESSOR 450MHz

- Mini Tower Chassis
- 512KB Single Bank Pipeline Burst Cache
- 128MB 100MHz SDRAM
- 8.4GB Ultra ATA Hard Drive
- 3.5" 1.44MB Diskette Drive
- 3Com® 10/100 TXM PCI Ethernet Controller
- 8MB ATI® EXPERT 98D 3D AGP Graphics Card
- Yamaha 64 Voice Wavetable Integrated Sound
- 40X Variable EIDE CD-ROM Drive
- Harman Kardon HK195 Speakers
- 17" Colour Monitor (15.9" v.i.s.)
- Microsoft® IntelliMouse™
- Microsoft® Windows® 98
- NEW Microsoft® Office 97 Small Business Edition
- McAfee Virus Scan
- 3 Year Limited Warranty
- Free Lifetime Telephone Technical Support

$3,859* plus delivery

or $32 per week**

Upgrade options include:
- 12.9GB Ultra ATA Hard Drive (7,200rpm) $233
- 19" Colour Monitor (17.9" v.i.s.) $360
- Call for a complete range of upgrades

CHOOSE AWESOME OPTIONS UP TO:

- **25GB HD and 768MB SDRAM**
- **16MB Graphics Card**
- **4.8X DVD-ROM**
- **320 Voice PCI Sound Card**
- **Dolby® Digital Speakers with Subwoofer.**

Blast off into a world of remarkable sound and visual reality with these Dell Dimension® multimedia rocketships. Built specifically to support the new Intel® Pentium® III Processor, they satisfy all your senses with amazingly smooth video and graphics; real time sound through speakers that let you feel the bass. Add a high speed 4.8X DVD-ROM to play the latest movies and games. To enter the next dimension simply call 1300 303 126 or visit our WebStore at www.dell.com.au

intel inside pentium® III

Call Dell Mon to Fri 8am-8pm, Sat 9am-3pm (EST), or visit our WebStore

Visit our 24 hour WebStore
for custom-configuration and on-line ordering

www.dell.com.au

DELL

BUY DELL **1300 303 126**

Please quote this key code: 7007402

DELL'S NORMAL TERMS AND CONDITIONS APPLY AND ARE AVAILABLE ON REQUEST. PLEASE CALL OR REQUEST ON-LINE.
***Prices and specifications subject to change without notice. All prices shown include tax but delivery is additional.** Certain configurations cannot be changed. Dell, the Dell logo, and Dell Dimension, are registered trademarks of Dell Computer Corporation. The Intel Inside logo and Pentium are registered trademarks of Intel Corporation. Microsoft and Windows are registered trademarks of Microsoft Corporation. Other trademarks and trade names may be used in this document to refer to either the entities claiming marks and names or their products. Dell disclaims proprietary interest in the marks and the names of others. All efforts will be made to check for errors in typography and photography; however, inadvertent errors may occur for which Dell may not be responsible. The colour of the Dell system shown in the picture is for advertising purposes only. Photographed with options. Lifetime telephone technical support refers to lifetime of the system. ** Dell can arrange for rentals based on a 36 month term excluding stamp duty and FID which varies from state to state. Rentals and operating leases are available only to approved companies and business customers. Figures shown are indicative and may vary with interest rates. Copyright 1999 Dell Computer Corporation. All Rights reserved. DELD010/APC/MUL

SPEED KILLS.

ATI RAGE FURY. So fast, you won't know what hit you.



GRAPHICS BY ATi rage 128

ATI RAGE FURY

- True 128-bit 3D and 2D graphics engine
- A massive 32MB of memory for realistic 3D gameplay, life-like textures and resolutions up to 1920x1200
- Experience 3D game action with true colour performance at 1024x768
- Integrated hardware DVD for incredible video playback
- Designed for DirectX 5.0/6.0 and OpenGL with full ICD
- Supports TV-out for big screen gaming and ATI-TV Wonder the add-on TV tuner that turns your PC into a TV



For RAGE FURY'S latest 3D performance scores check out www.atitech.com

The New Breed of Speed.

http://www.atitech.com/ad/pcacc

Servex Australia, Tower A, Level 3, 112-118 Talavera Road, North Ryde, NSW 2113. Phone: (02) 9870 1949.
Web: www.servex.com.au Email: dchan@acer.com.au
Qld: 0411 285 491, Vic: 0413 017 376.

© Copyright 1998. ATI Technologies Inc. ATI, RAGE FURY and ATI-TV Wonder are trademarks and/or registered trademarks of ATI Technologies Inc. Products may not be exactly as shown.

servex
service for excellence

Forget technical capabilities — many people are now choosing their software based on its development philosophy.

The politics of software

In his professional life, Cameron Shorter is a computer programmer grappling with the traditional problems of software development cycles that are never long enough. Outside that context though, he transforms, superhero-style, into a dedicated social activist, with a particular interest in public transport and the rights of cyclists.

Some of Shorter's activities in these areas are visibly obvious; he is, for instance, a leading light in Critical Mass, the cyclist lobby group which holds monthly rides through Sydney. However, one form of activism he participates in is less obvious: choosing to use only open source software when developing Web sites.

Shorter recently helped co-develop a new site, active-sydney (http://www.active.org.au/), which aims to provide news and events listings for activist groups throughout the city. Using Linux and a range of open source applications such as PostgreSQL was the logical choice, he said, because he admires the open source philosophy of 'Give as much as you can, take what you need'.

Shorter's attitude may seem unusual to a technology community which has always tended to cast aside concerns over how a product is developed to focus on the 'wow factor' of what it actually does. However, it is becoming increasingly common. On popular Web discussion site Slashdot, the self-proclaimed home of "news for nerds", posters routinely note it is committed to open source as much for its socially aware ethos as for its undoubted technical smarts.

Slashdot is seen as a model of community-minded information sharing by many activists. "One of the best things about Slashdot is that it's unashamedly arrogant geeks. It's not trying to be anything but what it is. And it's actually really using the Internet to be a new media," said physicist and activist Matthew Arnison, who helped develop the active-sydney site with Shorter. "I'd love to see a site like Slashdot that focused on activist news."

More than zero

That's not to say that a shared philosophy is the only factor in choosing open source software. Both Shorter and Arnison happily proclaim that the zero price tag attached to most open source applications was also a significant factor in choosing them.



"We went for the calendar program [on active-sydney] because it is effective and free," Shorter said. However, choosing a low-budget alternative is also a political choice, Arnison argued. "We've always been a low-budget group, and that gives us more freedom," he said.

Arnison embraces a view of open source that is common among its proponents: it's good not only in and of itself, but because it represents a threat to Microsoft's dominance of the world software market and its attempts to dominate the Internet. "Supporting [Linux] is part of keeping the Internet free," he said. "For Microsoft to keep growing, [it has] to turn the Internet into something else, something commercial."

That view is echoed by many others in the Linux community. Last month, for instance, a Linux-only online store was opened in Australia. While EverythingLinux (http://www.everythinglinux.com.au/) has a profit motive and is selling a range of Linux distributions, applications, books and support services, managing director Anthony Rumble also believes he has a social responsibility to assist in local open source software development. Rumble said he hoped that some of the profits from the business could be used to create a fund to support the development of open source software in Australia, and that this possibility was being explored with local Linux user groups. "We're already losing too many developers to the States," he said.

In the infamous 'Halloween documents', which outline Microsoft's competitive assessment of Linux, the company talks about decommoditising Internet protocols such as TCP/IP, Arnison said. "I'm surprised more people didn't pick up on that. The notion of free interchange of information is ingrained in the very protocol."

Arnison is heavily committed to spreading the gospel of open source, as well as using it for site development. In a recent paper, Arnison argued that open source software was the logical choice for the Community Broadcasting Association of Australia for both ethical and practical reasons, wryly noting that Windows NT "requires more money" for almost everything.

In a true community-spirited fashion, the active-sydney site is planning to give away its applications to other groups who feel they could make use of them (there have already been expressions of interest from Melbourne, Brisbane and Adelaide). The biggest problem with doing that may be the urge to ensure that the code modifications are checked and cleaned up before the software goes public, Shorter ruefully admitted. "When you're a geek, you just want perfect code."

After that, Shorter also has another project in mind. "I want to build a map of all the bike paths in Sydney," he said, a project that will use Java to allow cyclists to submit details of their favourite cycling routes and then add these to an underlying street map. Again, the selection of Java, which should run on any platform, is not accidental.

Whether the mass market embraces the notion that technologies should be developed ethically as well as effectively remains an open question. However, for existing open source converts, there's little doubt. "It's not just about the tool," said Arnison. "If a tool is politically built the right way, it affects how you use it."

Angus Kidman

FirstTake

Intel Pentium III

Beyond SuperO Velocity 500MHz and Gateway G7-500

The day the Pentium III was launched, there was a rash of announcements from PC vendors using the processor. Two, Gateway and Beyond, even managed to get us systems in time for publication.

The specifications of the two systems are remarkably similar. They both use 500MHz processors, 128M of memory and graphics cards based on the same chip (the RivaTNT).

The Gateway's hard disk was 5G bigger than Beyond's 9.1G disk, but not as blisteringly fast — not surprising given the Beyond uses an Ultra2 SCSI interface embedded in the motherboard. The DVD supplied in the Gateway system was about the same speed as the 32x CD-ROM in the Beyond, but it has the advantage of being able to play DVDs. Some fine Boston Acoustic speakers and a Sound Blaster Audio PCI 64D soundcard were also supplied in the Gateway system, while the Beyond system came with an excellent Sound Blaster Live soundcard, but poorer quality speakers. Both systems were supplied with quality 17in monitors: Beyond had a Sony Trinitron, Gateway a VX 700. The Gateway also came with a 56K modem. Both are very good systems, but you pay for quality: $5,850 for the Beyond and $5,246 for the Gateway.

The system performance provided few surprises and few reasons to upgrade. The Ziff-Davis Winstone scores, at 24.77 and 24.80 for the Beyond and Gateway respectively, are pretty much what you'd expect as a result of the increased clock speed of the new processors. The new instructions of the Pentium III do not help here. It's faster, certainly, but the need for that extra speed is questionable — especially at the premium Intel is charging for the processor. Looking at computermarket.com.au for the street prices of the processor, the 500MHz Pentium III costs $480 more than a 450MHz Pentium II — although a 450MHz Pentium III was $20 cheaper than the Pentium II. If you're going to upgrade to Pentium III, it's definitely best to get a 450MHz right now.

The graphics performance scaled predictably as well. Both systems attained scores of 191.7 in Business Graphics — compared to 181 achieved by a Gateway GX-450, which is a 450MHz Xeon machine with a RivaTNT graphics card. In the high-end graphics test, the Gateway scored a little better than Beyond.

The biggest selling point for these systems is definitely the 3D performance. Using the SSE-enhanced DirectX 6.1, the systems achieved previously unheard of scores in the Ziff Davis 3D WinBench 99 tests. Both systems scored 729, a far cry from the score of 448 achieved by the Gateway G6-450XL. That said, few games at this stage use SSE, and when tested with DirectX 6.0, the G7-500 scored only 508 (see 'Pentium III inside' on page 95). Unless you're heavily into 3D games, it's probably wise to save a few dollars by buying a Pentium II or Celeron system.

Nathan Taylor

Product	Beyond SuperO Velocity	Gateway G7-500
Distributor	Beyond Computers	Gateway
Phone	(02) 9417 3688	1800 500 734
Price	$5,850	$5,246
Online	http://www.beyondcomputers.com.au/	http://www.gw2k.com.au/
TESTING CONFIGURATION		
Processor	Pentium III 500MHz	Pentium III 500MHz
Level 2 cache	512K	512K
RAM/type	128M SDRAM	128M SDRAM
Hard disk drive	9.1G Seagate	14G IBM-DTTA-371440
Hard disk controller	Ultra2 SCSI	Intel PCI Bus Master IDE
Hard disk file system	FAT32	FAT32
Video bus type	AGP	AGP
Video adapter	Winfast 3D S320	STB Velocity 4400
Video RAM	16M SDRAM	16M SDRAM
Video controller chip	nVidia TNT	nVidia TNT
CD-ROM drive model	32x LG CD-ROM	5x TOSHIBA DVD-ROM
Operating system (bundled)	Windows 98	Windows 98
Monitor	17in Sony	17in VX 700
BENCHMARKS		
Business Winstone 99	24.77	24.80
CPUmark32	1,270	1,253.3
FPU WinMark	2,560	2,540
Business Disk WinMark 99 (K/sec)	4,426.67	3,070
High-End Disk WinMark 99 (K/sec)	14,000	10,466.7
Business Graphics WinMark 99	191.70	191.7
High-End Graphics WinMark 99	517.67	551.7
CD-ROM WinMark 99:Overall (K/sec)	1,470	1,460
3D WinMark	729	729
3D DISCLOSURE INFORMATION		
Flat shading/gouraud shading	Capable/Capable	Capable/Capable
Dithering/Z-buffer	Capable/Capable	Capable/Capable
Perspective correct textures	Capable	Capable
Nearest/linear	Capable/Capable	Capable/Capable
Nearest mipmap nearest/linear	Capable/Capable	Capable/Capable
Linear mipmap nearest/linear	Capable/Capable	Capable/Capable
Mipmap LOD bias	Incorrect	Incorrect
Modulate/decal texture blending	Capable/Capable	Capable/Capable
DecalAlpha/ModulateAlpha blending	Capable/Capable	Capable/Capable
Flat wrap texture addressing	Capable	Capable
Cylindrical wrap u/wrap v	Capable/Capable	Capable/Capable
Clamp/mirror texture addressing	Capable/Capable	Capable/Capable
Cull counterclockwise/cull clockwise	Capable/Capable	Capable/Capable
Cull cone	Capable	Capable
Fog vertex linear/fog table linear	Capable/Incorrect	Capable/Incorrect
Fog table exponential/specular highlights	Incorrect/Capable	Incorrect/Capable
Colour key/alpha transparency	Capable/Capable	Capable/Capable
Source alpha/add pixel blending	Capable/Capable	Capable/Capable
Modulate pixel/2X pixel blending	Capable/Capable	Capable/Capable
Alpha vertices/perspective correct alpha	Capable/Capable	Capable/Capable
Alpha comparison >/> or =	Capable/Capable	Capable/Capable
Alpha comparison </< or =	Capable/Capable	Capable/Capable
Z comparison >/> or =	Capable/Capable	Capable/Capable
Z comparison </< or =	Capable/Capable	Capable/Capable
Z accuracy/bias	Capable/Not capable	Capable/Not capable
Anti-aliasing 640 by 480/triangle rasterise	Capable/Capable	Capable/Capable
Texture fidelity/swapping	Capable/Capable	Capable/Capable
High triangle count	Capable	Capable
Fog vertex and color key	Capable	Capable
Fog vertex and alpha	Capable	Capable
Alpha and linear	Capable	Capable
Alpha and linear mipmap linear	Capable	Capable
Small triangles	Capable	Capable
Perspective correct color/specular	Capable/Capable	Capable/Capable
Anti-aliasing 1,024 by 768	Capable	Capable

The product used in these tests is the shipping version available to the public at the time of publication unless otherwise stated. Winstone, WinBench and associated products are registered trademarks of the Ziff-Davis Publishing Company. These tests were performed without independent verification by Ziff-Davis Publishing Company.

Looking for a mobile computer that's truly portable?



Half the size of a notebook... All the features.

While most sub-notebooks and palmtops are a convenient size, you have to contend with cut-down operating systems and applications, impractical amounts of memory, no upgradability, proprietary components and a host of other limitations. Now with the Compucon **EUROPA** Sub-notebook you have a full version of Microsoft® Windows®,



and can run standard office suites and applications. The EUROPA has an Intel® MMX processor, takes up to 128 Mb RAM, has an standard size 2.5" hard drive, a built-in 56K modem, 8.4" Touchscreen with Stylus, and more.

All that, yet the EUROPA weighs only 1.1kg, one third the weight of an average notebook.

COMPUCON

YOUR TOTAL SOLUTION PROVIDER

APC

Call for your nearest Compucon Authorised Solutions Centre

Sydney Ph (02) 9417 7166 Fax (02) 9417 7329 **Melbourne** Ph (03) 9870 5567 Fax (03) 9870 8928 **Adelaide** Ph (08) 8374 1981 Fax (08) 8374 2827
Brisbane Ph (07) 3856 0999 Fax (07) 3856 0932 **Perth** Ph (08) 9244 3400 Fax (08) 9244 3405 **http://www.compucon.com**

A satellite service that provides blisteringly fast Internet download speeds for home users.

Satnet

If you're a download junkie, you can't help but be frustrated by the snail pace of the Internet, particularly when experienced through a 33.6K or 56K modem. Until recently, the only option for bandwidth-hungry home users was a cable modem, but high costs and limited availability have kept this out of the reach of most.

The idea of using a satellite to download from the Internet may sound a little pie-in-the-sky, but it is available right now, and offers download speeds of up to 400Kbps. Satnet, a division of ISP The Internet Group (TIG), provides satellite Internet connections to home users in Melbourne, Sydney and Brisbane starting from $49 a month. Customers outside these cities can use Satnet, but will need to pay long-distance phone charges, since a modem connection is still required to negotiate the satellite connection.

The first thing you'll need is a satellite dish, currently a 90cm one, although you will be able to get away with a 60cm dish when Satnet switches to a new satellite later this year. A dish costs $650, and Satnet offers finance on this up-front cost from $31 a month. Installing the dish costs an additional $149 and setting up the account costs $69. You probably won't need council permission to set up the dish, but if you're in a block of flats your body corporate may not like it. You'll also need a clear line of sight to the satellite (in Sydney, for instance, it is due north at an angle of about 45°). If there are trees or buildings in the way, you're out of luck.

You must be running Windows 95/98 or NT 4.0 on your PC, and it must have a free PCI slot and plenty of space for the large interface card. Satnet recommends a minimum of a 100MHz Pentium processor. Linux drivers are available (without tech support) and Mac drivers are due later in the year. You won't be able to throw away your modem just yet, as you still need to dial up and connect to TIG so that your computer can send requests for data.

Satnet currently offers two pricing plans: Platinum costs $49 a month for 60 hours' access per month and $2 an hour for each additional hour, while the Diamond plan costs $59 a month and has no time limits.



Satnet has an uplink from the Internet to PanAmSat 2, which is orbiting about 35,000km above the Pacific Ocean. Internet requests go through your modem to TIG, then through the Internet to Satnet's satellite uplink, then to the satellite, and then back to you.

Satnet has currently reserved 4Mbps of satellite bandwidth, which is shared between all its customers. This means the total bandwidth available to each customer depends on how many are using the service at the same time. Satnet claims it provides a minimum of 128Kbps to each customer, and up to 400Kbps off peak. Satnet can increase the bandwidth reserved on the satellite as its customer base increases.

What this means is fast downloads. *APC's* reviewers tried out a Satnet connection, and once we got the hang of it, our minds boggled with possibilities. We downloaded four files simultaneously while watching a couple of streaming videos at the same time.

The four files downloaded at 20K *bytes* per second each (that's 160Kbps, or three times the maximum speed of a 56K modem, for each file) and the streaming videos came through at the highest quality without any pauses or glitches.

The trick to Satnet is to pretend you are in the US. Satnet's uplink from the Internet to the satellite is in San Francisco, so it's much faster to download from the US than from Australia. Using Satnet to download Australian files means they have to make the journey across the Pacific twice: once from the server to Satnet's US uplink, then via the satellite to you.

Satnet does have limitations. If the server at the other end is slow, then increasing your bandwidth will make little difference. A Web page or file on an overloaded server will be just as slow over Satnet as it will be over a modem. And while large downloads come through at blinding speeds, Satnet offers little improvement in the loading time of complex Web pages with lots of buttons or other small graphics.

Gamers will be less than impressed with Satnet's latency. We found that although there was little difference in ping times between Australian and US sites — both were about the 500 to 600ms mark — this is far too long for most online gaming. And for anyone looking for a cheap bandwidth to start making a fortune with a Web server, Satnet's bandwidth is for downloads only; uploads are at standard modem speed.

Satnet is planning to introduce television services through the same connection in the second half of this year, using a set-top box that plugs into a TV and doubles as a DVD player. This will offer up to 12 satellite channels such as BBC and CNN, and possibly also pay-per-view on-demand movies. These services will probably still require a modem connection.

Josh Mehlman

Satnet

Distributor	Satnet
Phone	Sydney (02) 9324 1500, Brisbane 13 62 92, Melbourne 1800 353 700
Online	http://www.satnet.com.au/
Price	$49 for 60 hours, plus $2 an hour thereafter, or $59 for unlimited access.
In short	Very fast downloads. Nice if you can get it.

Award-Winning Technology



The Best-Selling PC-DVD Encore Kit Has Just Got Better

The best selling PC-DVD has just got better! Vivid & astounding Hollywood cinematic pictures with Dolby Digital sound! • Dual function, high performance internal DVD-ROM drive and CD-ROM drive in one • State of the art DynamicXtended Resolution™ (Dxr2™) movie picture enhancement • Screaming 5X speed 3rd generation DVD-ROM drive • High speed 32X CD-ROM drive • Compatible with all formats including VideoCD, CD-ROM XA, CDR, CD-I and more • DVD player for your PC & TV

PC-DVD ENCORE

With DynamicXtended RESOLUTION

DEALER ENQUIRIES WELCOME.

CREATIVE P•A•C•I•F•I•C

SALES CENTRE: 1300 36 77 73

http://www.cppl.com.au

HEAD OFFICE: 32-34 Dickson Avenue, Artarmon NSW 2064

Fax: (02) 9906 5577

All brand and product names listed are either trademarks or registered trademarks and the property of their respective holders.

Two of the best inkjet printers we've ever seen.

Canon BJC-7100 and Epson Stylus Color 900

The improvements in the quality of inkjet printing over the past few years have been staggering. Technology has driven the printers to the point where real photo quality is not that far away. This month, both Canon and Epson came a step closer to that goal with their respective releases — the BJC-7100 and Stylus Color 900.

The Stylus Color 900 is the next iteration in Epson's successful Stylus line, superseding the 740 as the company's premium product in the range. Like the 740, it features Epson's variable-size droplet technology, making it capable of producing dots at three different sizes for better resolution. It also has USB connectivity (so it is suitable for iMac users), although like the 740, some work still needs to be done on the driver's buggy USB support. The Stylus Color can print at 1,440dpi resolution — still the highest in the industry — on paper sizes ranging from Envelope to A6.

The BJC-7100 prints at 1,200 by 600dpi, a strange step down from the BJC-5000's 1,440 by 720dpi. It does not have USB support at this stage, but does



have some features that the Epson lacks. For a start, it offers the option of using a seven-ink system. Unlike the Stylus Color, the cartridges in the BJC can be swapped at will, and the CMY cartridge (both printers use separate black and colour cartridges) can be swapped for a six-ink photo cartridge. (It's hard to imagine why anybody would even bother with the standard CMY cartridge.)

In the past, *APC* has been critical of the



life span of the BJC cartridges, but Canon seems to have rectified this somewhat in this range. It now uses massive ink wells which should last quite a bit longer than in the BJC-5000 line. The Canon also features what the company is calls P-POP technology — a bonding agent Canon claims delivers sharper images and better water fastness. It can print on paper sizes up to A4.

In terms of speed, both printers are markedly faster than previous versions. Of the two machines tested, the Canon proved faster at graphics. Printing a full-page colour image with the Epson at the highest resolution took 8 minutes and 30 seconds, while printing that same image with the Canon only took 5 minutes and 40 seconds.

On the other hand, the Epson did provide slightly better image quality, even with only four colours as opposed to the Canon's seven. Differences could be seen in the resolution and solidity of the colours printed, and dithering was more noticeable on the Canon, but its quality was still excellent. Both printers delivered excellent colour gradation, with the Canon's photo cartridge really delivering the goods here. As always, you need photo paper to bring out the best in these printers.

At the other end of the spectrum, when printing plain text, the Epson proved to be a little faster than the Canon. The Epson took an average of just 20 seconds to print three full pages of text at 360dpi. A large chunk of this time was actually spent paper feeding, which makes the speed of the printer near Epson's bold claim of 12ppm.

The Canon was nearly as quick, taking just 27 seconds to print the same three pages. Canon claims a speed of 8ppm. Also, the quality of the Canon's printouts in draft output was superior to the Epson's, and would be suitable for items such as school and university assignments.

The driver interfaces in both products are passable, with a wide range of options and easy-to-use interfaces. The BJC interface, though, annoyingly hides details of things like resolution even in the Advanced Configuration menu. The Stylus, on the other hand, delivers plenty of information, but is notoriously fickle. We've already mentioned the buggy USB support, and there are serious problems if you want to do something tricky like change the interrupt value on your parallel port.

Perhaps the BJC's biggest advantage is its price. Canon has been very aggressive with its pricing of late, and the 7100 is no exception with an expected retail price of $599. Compared to the Epson Stylus Color's $899 price tag, this is a real bargain for a quality printer. Still, buyers wanting the absolute best in high-quality colour printing will be well served by the Stylus Color's outstanding print quality — the best we've seen in any consumer inkjet so far, and bettered only by Epson's own Stylus Photo range.

Nathan Taylor

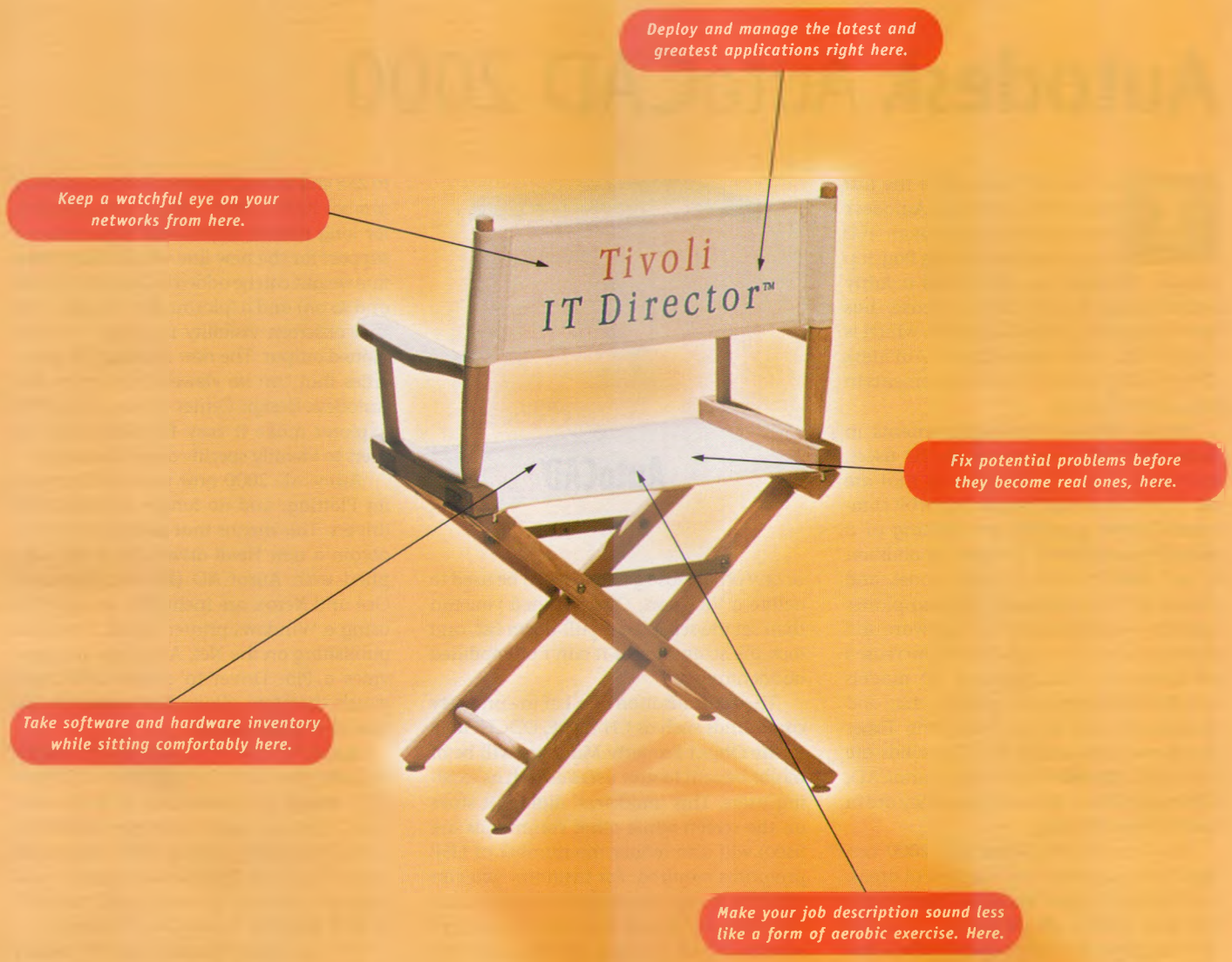
Canon BJC-7100

Distributor	Canon
Phone	(02) 9805 2000
Online	http://www.canon.com.au/
Price	$599
In short	A great buy, providing excellent quality and speed at a reasonable price.

Epson Stylus Color 900

Distributor	Epson
Phone	(02) 9903 9000
Online	http://www.epson.com.au/
Price	$899
In short	The best image quality you can get from a consumer inkjet — but you pay for it.

The Power to Manage. Anything. Anywhere.™ Tivoli



Like the idea of managing everything from one place?

Have a seat.

With Tivoli IT Director,™ you can get more out of IT. Rather than let IT get more out of you.

Sit back. Relax. Take a load off. Now you can control everything from one place: Business-critical applications. Networks. And PCs. From several dozen to several hundred. And a built-in home page lets you post late-breaking IT news. (Not a bad way to reduce help desk calls.)

This is happening right now. To see how Tivoli Systems has helped others work smarter, simply visit ***www.tivoli.com*** or call ***132 426*** and ask for ***Tivoli/Info***.

Designed for Microsoft® BackOffice™

Tivoli is a registered trademark, Tivoli IT Director is a trademark, and The Power to Manage. Anything. Anywhere. is a service mark, of Tivoli Systems Inc. in the United States and/or other countries. In Denmark, Tivoli is a trademark licensed from Kjøbenhavns Sommer – Tivoli A/S. Tivoli Systems Inc. is an IBM company. IBM is a trademark of International Business Machines Corporation in the United States and/or other countries. Microsoft is a registered trademark and BackOffice and the BackOffice logo are trademarks of Microsoft Corporation. © 1998 Tivoli Systems.

OgilvySFT157

Autodesk AutoCAD 2000

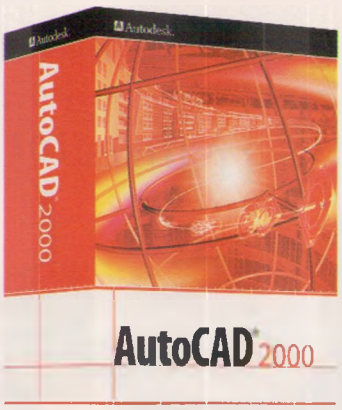
In the two years since the last release of AutoCAD, Autodesk has incorporated over 400 improvements into its flagship product. Release 14, which was a fairly comprehensive and stable release, has been updated to AutoCAD 2000, which is built on the third generation of Autodesk ObjectARX and provides enhancements in a number of areas.

While 80% of the improvements in AutoCAD 2000 are aimed at 2D users, there are some new 3D features that are not to be overlooked. A new 3D Orbit command allows working and editing of a model in a rendered 3D view, in addition to real time rotation of your model, and real-time front and back clipping planes for better visibility. OpenGL hardware and software support is included for increased performance when rotating 3D models and the incorporation of ACIS 4.2, and commands such as Shell, Imprint, Taper and Move Face, mean that the solids are now fully editable in standard AutoCAD, although not parametrically as they are in Mechanical Desktop.

The interface for AutoCAD 2000 has also been improved in a number of areas. For instance, a new Multiple Design Environment (MDE) allows you to not only have multiple drawings open in the same session, but also to create and edit data in different drawings simultaneously. Those who work on projects will appreciate the simple process of copying geometry from one drawing to another using a right-click, or matching object properties to standardise company output.

Apart from the MDE, the biggest visual change to AutoCAD 2000 is the update of Paper Space. The user now has multiple 'paper spaces'. These come in the form of tabs, similar to those found in Microsoft Excel. Each tab represents a drawing 'layout', and can be set up entirely differently from any other. The differences could include title blocks or Viewport layouts, as well as incorporating a totally different Plotting Style. The Plot Styles provide a mechanism to plot the same geometry in many different ways, such as using different pen weights, line types or line densities.

A welcome addition to AutoCAD is the new non-rectangular Viewports; a spline



or any other close geometry can be used to define a Viewport. Once defined you can then set the scale via a pull-down list, and lock the scale so that it can't be modified accidentally.

The centralisation of all of the property commands such as CHANGE, DDCHPROP in the Object Property Manager will be of major benefit to new users as well as existing users. This 'modeless' dialog (it stays on the screen while other commands are used) will also reduce the number of LISP programs required. For instance, you can quickly change the height or style of multiple pieces of text, or the layer or colour of several objects at once. Additionally, the updated right-click menu system provides an intuitive interface to current commands by updating its contents depending on the current command, or type of selected objects.

Another new feature of AutoCAD 2000 is the Design Center. It allows the drilling down or mining of data, and simplifies processes such as copying dimension or text styles from one drawing to another. It can also be used to manage your block libraries. A Partial Open feature allows you to only load a specific portion of data into RAM and in conjunction with 'in place' xref and block editing will improve productivity when working on large data sets. Two additional object snaps, Extension and Parallel, work well with Object Tracking, which is a greatly enhanced version of the tracking features of earlier releases.

Improvements to symbol table information mean that AutoCAD can now use up to 255 characters for Layer, Block and other symbol table names. Apart from support for long names, Layers now also includes support for the new line weights (onscreen line weight can be added to lines and circles and so on) and a 'plot/no plot' toggle — so that onscreen visibility no longer dictates plotted output. The new drawing file properties that can be viewed from either the Autodesk Design Center or from Windows Explorer make it easy for non-AutoCAD users to identify specific design drawings.

AutoCAD 2000 now uses Heidi drivers for Plotting, and no longer supports ADI drivers. This means that users will have to obtain a new Heidi driver if it is not supplied with AutoCAD (Hewlett-Packard, Océ and Xerox are included), or revert to using a Windows printer driver. For those publishing on the Net, Autodesk also provides a Plot Driver to create DWF files, which therefore allows line weight to be included in the output.

AutoCAD 2000 also extends the ability to customise with the inclusion of Visual LISP, which was previously an extra cost item. You can now customise AutoCAD using AutoLISP, Visual LISP, Microsoft Visual Basic for Applications (which now supports multiple projects), and ActiveX, as well as using Visual C++ Version 6.

All of these improvements mean Autodesk's efforts over the last two years have not been wasted. It has delivered the things that customers requested. The simplification of older commands, changes to Paper Space, and the new dialogs will shorten the learning curve for new and veteran CAD users alike. The 3D Orbit and ACIS solid editing will please those who work in 3D. Overall, a product with something for everybody who uses CAD.

Jeff Baker

AutoCAD 2000

Distributor	Autodesk
Phone	1800 032 073
Online	http://www.autodesk.com/
Price	$5,995; $795 upgrade
In short	A very solid update to the market-leading CAD product.


Plain paper.
(Along with any other kind you might need.)
Whatever paper you need floating around the office, we can supply it in a huge variety of finishes and sizes. Plus, you'll find all the big name brands like Hewlett Packard, Epson and Canon at guaranteed everyday low prices. So call 13 15 05 for your nearest store.
Taking care of business™
Officeworks
Superstores®
OFW0604/APC

Another way to access the stability of Unix — and it's free.

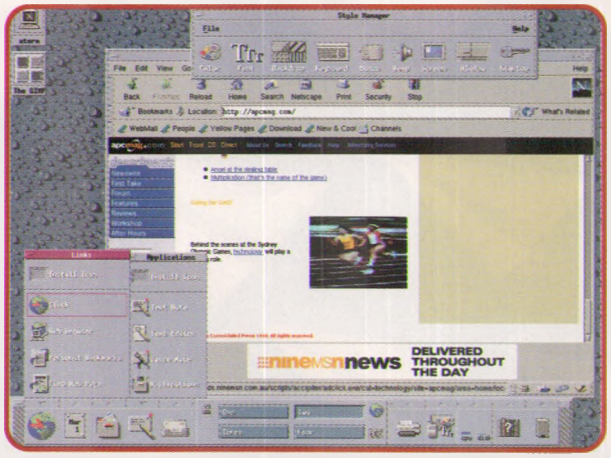
Solaris 7 for Intel

Solaris, Sun's own Unix variant, has been evolving since it debuted for the Intel platform in 1991. Since then it has become a trusted and respected name among system administrators. This latest release introduces a number of new features and a name change for the Solaris operating system. Rather than go with the traditional naming mechanism, Sun seems to have taken a leaf out of Microsoft's marketing tome and named Solaris 7 the successor to Solaris 2.6. Future versions will also only have a single version number, and updates to the OS will be date-stamped upgrades.

While Solaris 7 is aimed firmly at the corporate market, *APC* was keen to explore this latest Solaris release given our recent stint with the Linux operating system. Although it's not an accurate comparison, it is interesting to see the level of development and integration between a commercial form of Unix such as Solaris, and an open source Unix such as Linux. For example, Solaris comes with a suite of administration tools designed specifically for Solaris, and whereas Linux uses XFree86 as an X server for the X Window GUI, Solaris uses OpenWindows with the commercially developed CDE (Common Desktop Environment) as the operating environment.

The feature set of Solaris 7 is extensive. Solaris is now a full 64-bit operating system — if you happen to be using SPARC hardware. However, according to Sun, Solaris 7 has been tested on a beta model of Intel's 64-bit Merced chip, and will fully support Merced soon after its release. Other new features include seamless connectivity to Windows 98 and NT, OS/2, Netware, Macintosh and other Unix variants, euro support, the latest Solaris optimised versions of the 1.2 Java Runtime Environment (JRE) and Java Development Kit (JDK) and, as you would expect, full Y2K compliancy.

For our review we installed Solaris 7 on a Compaq Deskpro 6350, a Pentium II 350 machine with 128M RAM, 10G IDE drive and an 8M Matrox G200. Installation was a snap, with an excellent hardware detection routine that managed to correctly detect all of the hardware bar the video card (X Window is separate from the main installation). Even the latest Intel-based network card was correctly detected, always handy for a machine destined to be a server.



Apart from the traditional automated install, Solaris 7 also offers a new and easy-to-use 'Web Start Wizard' install routine that allows you to install various packages through a browser interface. This same interface is also used to install and configure a wide range of Solaris application software, such as the Solaris Easy Access server or Solaris ISP server packages.

Our only installation hiccup was in relation to configuring X Window — Solaris 7 doesn't support the Matrox G200. As a result, we decided to venture into the realm of system reconfiguration and install the latest version of XFree86 which supports the G200. We quickly discovered how the Solaris directory system differs from that of Linux, but with some trial and error and a quick read of essential documents it wasn't long before XFree86 was up and running and we were working our way through CDE.

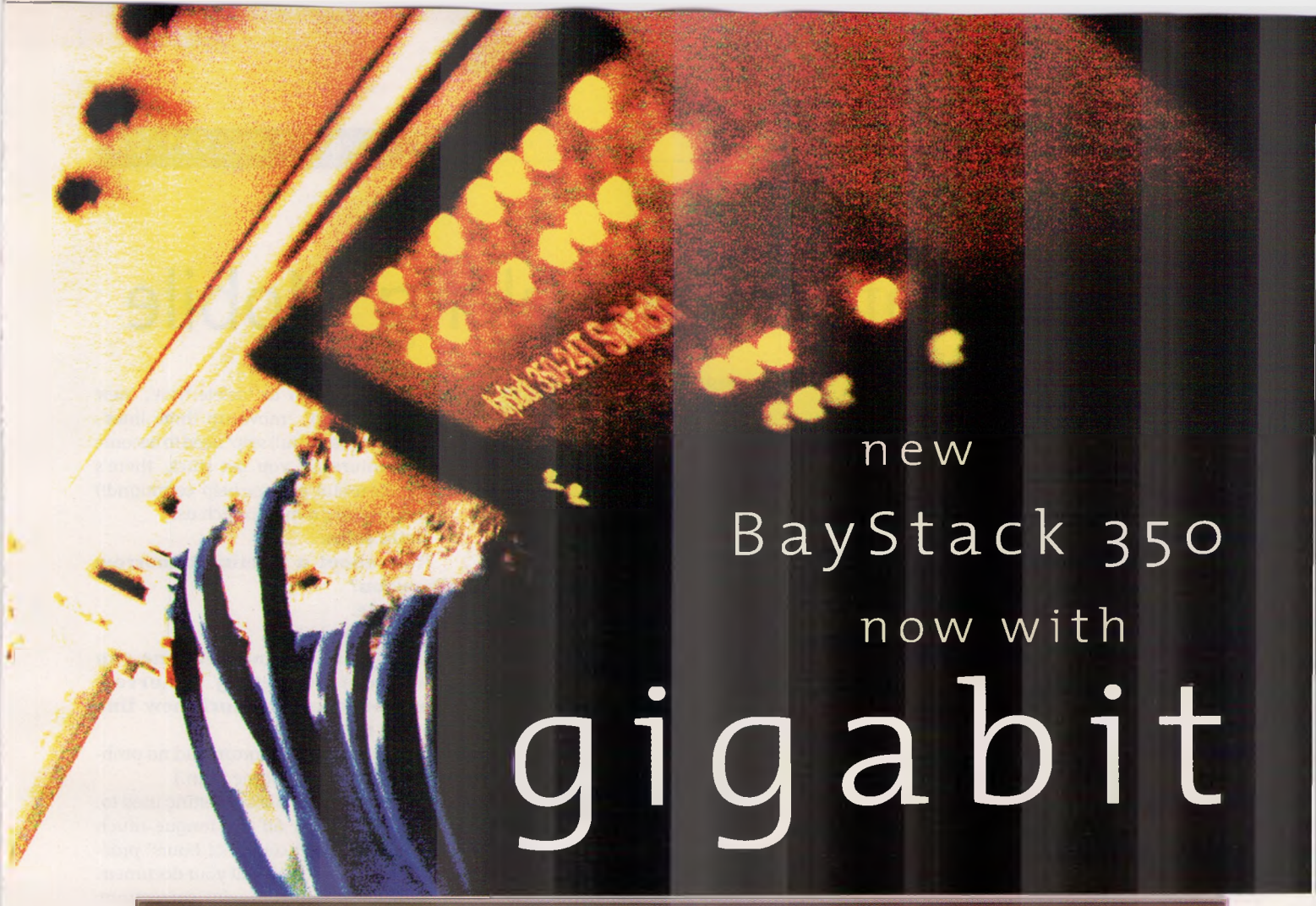
As far as GUIs go, the combination of OpenWindows and CDE is remarkably efficient. CDE is intuitive and easy to use and, when supplemented by Solaris' own toolset, we found we rarely needed to use the command line. For a Unix-based system, this is praise indeed. All aspects of system and user administration could be handled through CDE and Solaris' administration applications. A central front panel allows standard applications to be 'docked' (such as CPU and disk activity) or launched (such as the administration tools). It also serves as a place to manage multiple desktops and organise applications via multiple slide-in menus. Even the file manager is well integrated, and for those Unix users who aren't fond of mounting and unmounting external devices, Solaris will do it for you. There's even an integrated help system that uses Solaris' AnswerBook format, in which just about any query you have will be answered. Browser-wise, Solaris defaults to Sun's Java-based HotJava browser, although Netscape 4.5 is included separately.

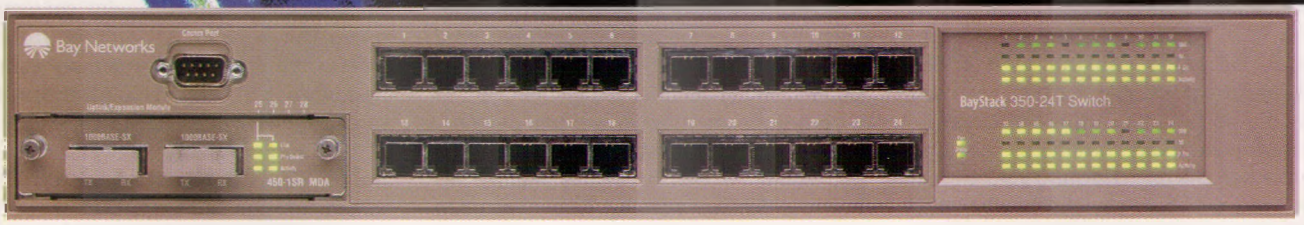
Overall, Solaris is fast and stable, and above all else, very well integrated as a complete system package. It's a niche product; unless you need an operating system to handle very demanding situations, or your application software is Unix based and can be ported, you won't find a need for the powerhouse performance and stability that Solaris is reknowned for. It was an interesting experience to explore Solaris, and for now, this reviewer is still using it as his (albeit somewhat undertaxed) workstation. At least it hasn't blue screened yet.

Ashton Mills

Solaris 7 for Intel

Distributor	Sun
Phone	(02) 9844 5000
Online	http://www.sun.com/solaris/
Price	Free for personal use, $950 for commercial use.
In short	The latest version of one of the world's workhorses.





build it right with BayStack 10/100/1000

Not only are BayStack 350 Switches gigabit fast, they're highly scalable with autosense 10/100 mbps and 1000 mbps Ethernet switching. The combination of speed, scalability and excellent price-performance makes the BayStack 350 Switches perfect for rapidly expanding networks in demanding environments.

From data to telephony, LAN to WAN, Nortel Networks offers a complete breadth of products to help you create a Unified Network and we deliver solutions which allow you to share ideas and information anytime, anywhere Don't settle for anything less. Get the full story on this latest BayStack top-performer from Bay Networks, a Nortel Networks business by visiting **www.nortelnetworks.com**

NORTEL NETWORKS

How the world shares ideas.

Nortel Networks, the Nortel Networks logo, How the world shares ideas and Baystack are trademarks of Northern Telecom. © Northern Telecom Limited. All rights reserved.

i1868NOR/APC

Dragon NaturallySpeaking Mobile

A small recording device you can speak into and then plug into your PC to automatically retrieve and transcribe your notes — it sounds great, doesn't it? The verdict after testing one such product, Dragon NaturallySpeaking Mobile, is that we were left wishing things worked as well in practice as they do in theory.

The NaturallySpeaking Mobile package consists of a tiny digital 'voice-to-text recorder' (VTR) device; Dragon's NaturallySpeaking software, including the PC linking software Voice It Link; the link cable; and a headset.

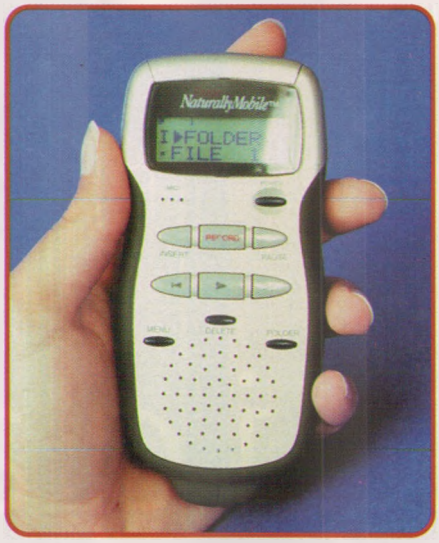
The idea behind this product is that you take the recorder with you wherever you go and record messages and notes, up to 40 minutes in duration. The recordings are stored in different folders. When you get back to your PC, you link up your recorder and transfer the recordings to the PC as audio files, which are then loaded into Dragon NaturallySpeaking (part of the package) and translated into text. You then open the documents within the software, where you can make changes by speaking into the headset and dictating your corrections. You can also use the headset and speak directly into the software program. The text is then entered directly on the screen, in short bursts of phrases.

We found the recorder very easy to use. The one-step recording means you aren't fumbling around when that vital thought pops into your head. You can delete folder contents by holding down the delete button, and all of the other buttons are self-explanatory. The recording quality was also very good.

The first problem we found in our testing was at the stage of reading onscreen what we had supposedly told the recorder. The results vaguely rhymed with what we said, but definitely weren't what we said.

The accuracy of how well your voice can be transformed into text depends largely on how well you train the software to recognise it. To do this, you must read one of three lengthy passages into the recorder. For our test, we read an *Alice in Wonderland* excerpt, which took 26 minutes — that's a long time to be reading while consciously pronouncing each word clearly.

The software then goes off to analyse the sound and pronunciation of your spoken



word. Following this, you can begin using the recorder and software. (NaturallySpeaking will also work in supported word processors such as Microsoft Word 97 and Corel WordPerfect 8.0.)

But there is still much work to be done. Building up the vocabulary is essential to increase the accuracy of your documents, but it is time consuming. When you run the Vocabulary Builder in the software, it asks you to submit written documents which are typical of the text you will be dictating. It could be letters, email messages, reports or memos. Vocabulary Builder then scans the documents and lists any unfamiliar words which you can then train it to recognise.

When we said 'hello Roulla' into the recorder, the software interpreted this as 'hello ruler'. This was phonetically correct, but we then trained the software to associate that spelling with the pronunciation. The next time we said 'hello Roulla', the software correctly processed our pronunciation.

We thought we'd try a few other phrases, but didn't have much luck. Our 'good or bad, happy or sad' turned into 'or that he will stand'. It can be very frustrating, when you try pronouncing the phrase in a number of different ways, and still get a different incorrect result each time.

This process is further frustrated by the fact that you will need to use a number of phrases to edit and navigate your document. Phrases such as 'delete that', 'new paragraph', 'cap', 'move up three lines', 'italicise that', and 'full stop' need to become second nature. (If you get stuck, there's always the useful 'give me help' command!)

So, dictating a memo such as:

Hello John,

How about a meeting tomorrow afternoon?

Call me.

would sound like:

Hello John comma new line cap how about a meeting tomorrow afternoon question mark new line cap call me full-stop

(By the way, the program had no problem recognising the name John.)

The phrases take a bit of getting used to, but seemed to roll off the tongue much more easily after a couple of hours' practice. Of course, you can edit your document by manually entering any corrections using the keyboard, but this probably defeats the purpose. (For a more comprehensive look at Dragon NaturallySpeaking software, check out *APC* March, page 42.)

We had one glitch, though. There were no problems connecting the recording device through the serial port of our Pentium II 300MHz with 128M of RAM, but we had no luck connecting it to our notebook. Conflicts with comm ports abounded and we simply couldn't get the recorder to speak to the machine. We were unable to resolve the problem.

This is an expensive recorder. The package is officially listed as $699, however, you could save yourself $100 or more by shopping around. If you are interested in voice recognition and have the time to build up a solid vocabulary, it could prove very useful.

Roulla Yiacoumi

Dragon NaturallySpeaking

Distributor	Marketing Results
Phone	(02) 9899 5888
Online	http://www.dragonsys.com/
Price	$699
In short	An expensive package; strictly for those dedicated to the pursuit of voice recognition as a lifelong philosophy.



Kodak Digital. Now they'll actually believe you.

Kodak has a comprehensive range of easy-to-use digital cameras that make recording your achievements easy. Whether it's for business or pleasure. Or both! Send a Kodak digital moment downline, or store it for future reference on a CD and you'll see that a picture is indeed worth a thousand words. For further information phone 1800 674 831.



Whatever your application, Kodak has the digital camera for you.

www.kodak.com

Kodak

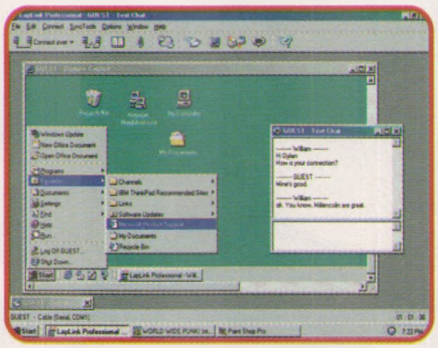
LapLink Professional

Remote access software is used to transfer files from one computer to another, to allow mobile workers to log in and control their office PC when on the road, and for technical support purposes. These tools have been around for several years, but the recent introduction of Universal Serial Bus (USB) has given them a real speed boost.

LapLink Professional is the first remote access package to take advantage of USB, and the benefits are extraordinary. A 40M file, which would take over half an hour to transfer via a serial port, takes about 1 minute using LapLink Professional and a USB port.

USB installation is a breeze under Windows 98. The system automatically detects the USB cable and prompts for a USB driver, which is supplied on floppy disk with LapLink Professional. Once the driver is installed, reboot and you're away.

LapLink is also the first package to support Windows Fast Infrared (FIR) as well as other standard connections such as TCP/IP, IPX, ISDN and modem. The latter in particular benefit from LapLink's SpeedSync compression, which the developers claim is more efficient than other



'delta' techniques. Serial or parallel cables can also be used if it's really necessary.

However, file transfer is only a small part of the LapLink package. For mobile workers, the big drawcard is remote control. This allows a notebook user working at home or on the road to control an office computer as though they were sitting in front of it. This feature has been available in most packages for several years, but it is only now that several annoying software restrictions have been resolved.

Logging in to a remote computer, for example, has been greatly simplified by eliminating the need to set each computer as a guest or host. With LapLink Professional, a mobile worker can log in to any office PC, as long as it is turned on and running the software. This version also allows users to regain control of a remote computer after that system has been rebooted.

Screen refresh rates have also been improved. When using Windows 98, the software can automatically disable features such as Active Desktop, font smoothing and other options that slow performance. However, twitchy mouse users should be warned that performance will slow to a crawl when the software attempts to keep up with your movements.

Perhaps the only thing missing from LapLink Professional is a feature that will prevent remote users from accidentally accessing the host's LapLink window.

William Maher

LapLink Professional

Distributor	Hot Key
Phone	(02) 9922 5199
Online	http://www.laplink.com/
Price	$199, $79.95 for USB cable
In short	USB support has significantly enhanced LapLink Professional.

PowerQuest Lost & Found

Lost & Found is a DOS-based data recovery tool that aims to eliminate the need to send disks to a professional data recovery centre if critical data has been lost, whether through accidental deletion, disk error or damage. It's meant for emergencies — PowerQuest claims that as long as the platters on your disk still spin, data can be retrieved.

Accordingly, Lost & Found is quite a complex and powerful tool — deceptively so, considering it comes on just two 3.5in floppy disks and only runs in raw DOS mode. It's not for beginners, as it involves such things as examining the first cluster of a lost file, but those who miss the Undelete utility included in MS-DOS 6.x are sure to like this product.

When Lost & Found analyses a disk, it sorts the deleted and corrupted files it finds into colour-coded groups depending on the chances of recovery. Naturally, the more disk activity following deletion, the harder it will be to recover files, and files which occupied storage space that has since been overwritten are generally unrecoverable by any means.

Examining a disk can be a slow process. *APC* had no problems recovering recently deleted files from a hard drive, so we put Lost & Found to the test with a 701K installation program housed on a 1.44M floppy disk which had been stamped on, written on and poked with a ballpoint pen. Windows and DOS reported a data error and would not read the diskette, but Lost & Found spent around 1 hour examining its contents, reporting that only about 25% of the sectors were readable and then attempting recovery. A complete 701K file was produced and was still able to run itself, display a logo and begin its installation process, although it hung at 25%. Still, this was an amazing effort by Lost & Found — a large amount of lost information could have been salvaged.

Recovered files must be written to another disk, whether a floppy (spanning multiple disks if necessary) or another partition. Unless the original directory structure is retained, recovered files are initially stored as a proprietary backup saveset from which restoration is completed with an included 32-bit Windows utility called ReNew.

PowerQuest's copy protection meant *APC* could only test Lost & Found on a single PC. Search & Rescue, an expanded version of the product, can run on any number of systems.

If you have a real disk emergency involving critical data that's beyond the reach of ScanDisk and the Recycle Bin, Lost & Found offers genuine assistance.

Simon Vandore

PowerQuest Lost & Found

Distributor	CheckMark Technology
Phone	(02) 9957 6970
Online	http://www.powerquest.com/
Price	$99
In short	A good, hard-core data recovery tool to buy for emergencies.

To be effective, privacy legislation must keep pace with developments in information technology.

Protecting our private bits

Many of us consider our private bits of personal information to be highly sensitive. The prospect of others obtaining those private bits is unwelcome to say the least. This personal desire for data protection and the increased threat posed by information technologies to data privacy has led to a renewed push for data protection laws both in Australia and internationally.

This push is not new, however. The Organisation for Economic Co-operation and Development (OECD) was discussing such matters in the late 1970s, when Australia's Honourable Justice Michael Kirby was chairing the OECD Experts Group on Privacy.

A decade later, the Federal Government recognised the need for limited data protection measures and introduced the Privacy Act. This regulated Commonwealth and ACT agencies which processed personal data, and private sector entities which used tax file numbers and consumer credit information. The private sector was left to use personal data the way it chose. The boom in information technologies and data processing, however, has revealed the need for far greater privacy laws.

The European Union was the first to comprehensively respond to the increasing threat information technology presents to privacy in both the public and private sectors. In 1995, it issued the Data Protection Directive. By October 1998, all member states had enacted legislation modelled on the directive.

Legislation modelled on the directive — for example, the UK's Data Protection Act — regulates the manner in which personal data (for example, name, address, occupation) is processed. The UK act also prohibits, with some exceptions, sensitive personal data (for example, data about racial or ethnic origin, political opinions, health or mental condition, and sex life) which is processed in the UK. The UK Privacy Commissioner administers the act, ensuring that it is applied consistently across all industries and in both the public and private sectors.

Two important features of the UK act are the provision of criminal penalties for infringement and the right of an individual to claim monetary damages if she or he suffers damage as a result of an infringement of the act. Importantly, Britons can enforce their privacy rights in a court, as well as seeking assistance from the Privacy Commissioner in enforcing their rights. These are strong measures that reflect what commentators see as the human rights aspect of data privacy.

The EU directive is extremely important from Australia's point of view, as it generally prohibits data processors in the EU from transferring personal data to a country outside the EU unless that country provides "adequate protection" for that data. This prohibition will impact on Australian businesses that rely on such data transfers.

The directive caused Australian governments to take action. Victoria was first off the mark, releasing its Data Protection Bill, modelled on the Australian National Privacy Principles (NPP), last year. The Federal Government followed Victoria's lead by committing itself last December to introduce a national 'light touch' data protection bill, based on the NPP.

The bill is built around a self-regulatory model which allows individual industries to adopt their own privacy codes. It will only apply if an industry code is not adopted. The freedom given to industries to implement their own codes is a great idea. Obviously, applying the same standard across all industries has the potential to cause inefficiencies. Different industries may set standards higher or lower than those set out in the bill. This will ensure that data privacy is protected in an efficient manner. Certain safeguards are in place, however. The Privacy Commissioner must approve all proposed codes. If industries propose a code that unjustifiably attempts to water down some or all of the data privacy obligations, then presumably the Privacy Commissioner will not approve that code.

The strength of penalties that may be provided under the codes, and the issues of independence that naturally occur in the context of self-regulation, are also causes for concern. While some may suggest that it is more efficient to ensure the courts have no role under data protection laws, some may argue that a right to apply to a court to enforce their rights under data protection laws is essential.

Deacons Graham & James believes that if the states, territories and the Federal Government can work together and enact a national scheme, Australia will provide appropriate, consistent protection for personal data. It is highly likely that such legislation would satisfy the EU's data transfer rule. This will only be the case, however, if the EU considers Australian laws to be somewhere in the ballpark of acceptability — not sitting alone in the bleachers.

While business should not be burdened by heavy-handed data protection laws, it must be subject to laws that provide an appropriate level of protection for what Justice Kirby refers to as a fundamental human right, personal data privacy.

Leif Gamertsfelder is an IP/IT lawyer with Deacons Graham & James.

Links

- **Privacy Act 1988 Commonwealth**
 http://www.austlii.edu.au/au/legis/cth/consol_act/pa1988108/
- **Data Protection Bill Victoria**
 http://www.vic.gov.au/stategov/dbills.html
- **European Union directive on the protection of individuals with regard to the processing of personal data and the free movement of such data.**
 http://www2.echo.lu/legal/en/dataprot/directiv/directiv.html
- **For an example of legislation modelled on the EU Directive, see the UK's Data Protection Act 1998**
 http://www.hmso.gov.uk/acts/acts1998/19980029.htm
- **National Principles for the Fair Handling of Personal Information (revised edition)**
 http://www.privacy.gov.au/publications/index.html
- **For criticisms of the position on data privacy, especially regarding self-regulation**
 http://www.epic.org/privacy/intl/rotenberg-eu-testimony-598.html

The Internet bubble is about to burst — as it was always destined to do.

Pop! Splat!

"Psst! Wanna good invest ment? It's this little Interne outfit a mate of min knows? The shares ar going through the roof. Can't lose. Investors hungry for a piece of recen share market action have heard man variations on this theme, as Internet an telecommunications-related stocks hav headed for the stratosphere.

Such mad times happen every fe years and are a fascinating exercise i psychology and market dynamics. Fo people brave or foolhardy enough to b tempted into such short-term speculatior it can occasionally be extraordinaril lucrative. At such giddy heights, howeve investing becomes little more than gamble.

Substitute Internet for tulip bulb South Sea oil, nickel, cash box companie or railroad stocks, and you have some ide of what could lie ahead.

The more the world changes, the mor market behaviour remains the same.

The 17th century Dutch tulip bulb boom was followed quickly by the 17th century tulip bust. The Poseidon nickel boom of the late 1960s? If you don't remember, you can guess . . . excitement at new nickel deposits was followed by frantic bidding for nickel stocks. Poseidon shares hurtled to $268 on the ASX, and then crashed.

Burned into the psyche of more recent investors is the crash in the late 1980s, after tiny cash box companies rushed to float, chasing capital to develop everything from automatic ironing machines to obscure hardware and software.

Until recently, Australian investors showed more restraint than their US counterparts. Recent figures show that investors who have bought Australian telecommunications, technology and media stocks over the past year have earned a better-than-average return.

According to InTech Asset Consulting, Australia's sharemarket posted a reasonable 13.1% rise in the year to January 31. Industrial shares have returned a healthy 20.4%, while resources stocks have been a big loser over the period, showing a 15.3% decline.



The telecommunications sector led by a staggering amount. Over the year, telco stocks gained a stunning 82.2%, well ahead of the next strongest sector, alcohol and tobacco, at 51%. Aside from the spectacular success of Telstra shares, which more than doubled in value, were the extraordinary performances of One.Tel, AAPT and Vodafone subsidiary Mobile Communications, and floats such as Cable & Wireless Optus and LibertyOne.

Somewhere the madness crept in. A proposal by Publishing and Broadcasting Limited to float its fledgling NineMSN Internet division sent its share price rocketing. A string of smaller float proposals or takeovers have sprung from the pile. Yes, Internet business is growing fast but the fanciful prices touted have been based more on a desire by big companies not to miss out on the action, rather than analytical rigour.

Larry Williams, chief executive of listed carrier AAPT, summed up the madness in February when AAPT scooped up the remaining stake in Internet service provider Connect. He joked that he should change AAPT's name to Connect to better reflect the growth profile of the industry.

Normally, examination of a listed stock's price-to-earnings ratio (the price of the share relative to the actual or forecast profit on each share) gives a reliable lead to the growth prospects for that stock. For some time now these have been marked up to ridiculous levels.

Telstra is one example. Brokers have pitched it to overseas clients as an Internet stock because it owns ISP Big Pond. As a result, it is trading on a prospective 1999 price/earnings ratio of 34 times, compared with a market average of 19. It is even higher than that of similar telcos in Europe. Other Internet-related stock which won't see profit for a long time, even on optimistic assessments, show more fanciful ratios.

At this point the thoughts of New York management consultant Joel Stern of Stern Stewart & Co may bring a few investors back to earth. Stern specialises in measuring the financial performance of listed companies. He recently observed that the difficulty for investors was that modern accounting standards hadn't caught up with the virtual economy.

Stern's assessment is that the Internet bubble will burst this year — sooner rather than later. His recent sober prediction to financial media was that up to 75% of the value of Internet stocks would evaporate when the market turns.

Buying in at such market heights is only for the extraordinarily brave, or the stupid. The very risk is what makes the market exciting.

Telecommunications and the Internet are a world-changing phenomenon, just like the development of the telephone, television and the parallel emergence of the steel industry and railroads.

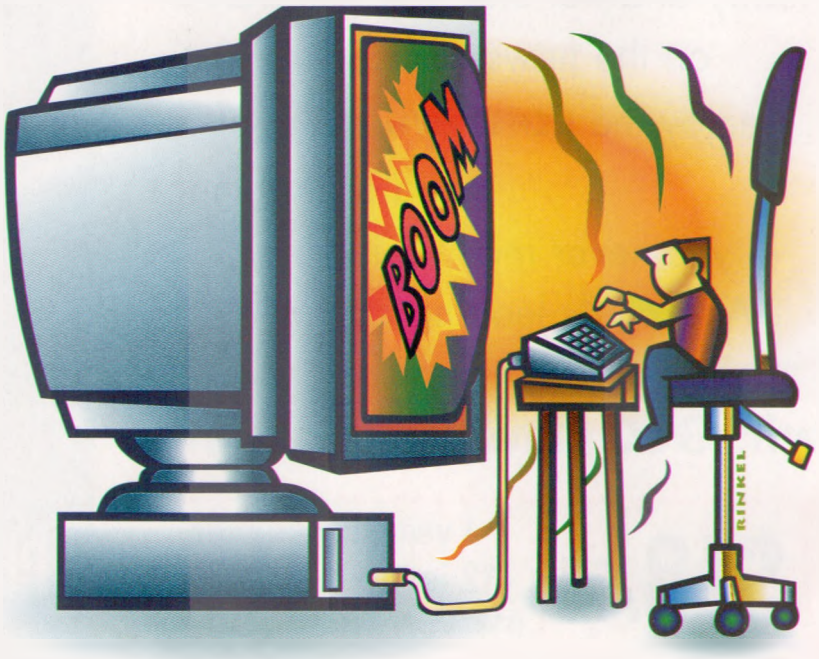
One of the formative figures in the latter half of the 19th century, steel titan Andrew Carnegie exploited innovation to slash steel prices, which in turn made it cheaper and easier to connect cities by rail. Carnegie turned up his nose at conventional wisdom's suggestion you should diversify your investments. "Put all your eggs into one basket," he once advised, "and then watch that basket."

Few of us have the market power of Carnegie. Conventional wisdom is sound, even on the cusp of the new Internet economy. Don't hand over all your eggs, unless you want to lose the eggs and probably the basket as well.

Jessica Stuart

A couple of extra inches on your monitor can cost more than you expect, especially if you are purchasing en masse.

Looking good



Not only do larger monitors initially cost a lot more, but they also cost more to run over time. Obviously there are instances where it is advantageous to have a larger than standard monitor. The larger overall size of a 17in display, for example, allows for the possibility of higher resolutions, a greater number of colours and better overall screen displays. Thus those who work on graphic design and layout, play a lot of games, or use their computer screen as a television will benefit from the results. However, for traditional computer work, it is probably not worth the extra costs, said Alan Pears, director of energy consultancy Sustainable Solutions.

"There is a blow-out of people using 17in monitors," he said. "The staff think bigger is better and say they can be more productive if they have a larger screen, but I have seen no evidence of this being the case."

While the average 15in monitor consumes about 70W of power, a 17in display consumes 100W to 135W. "If you take a 17in monitor that is using 100W, and it's left on all the time, it will cost you about $50 a year more than a 15in monitor," Pears said. "If it is only on during office hours, the cost would increase by about $15. That may not appear to be much but when you are talking about an office full of systems, it begins to add up."

If your office is anything like that of *APC*, space is an issue. Finding the room for large monitors can be a problem, as can the extra heat generated when running a lot of them in a confined area. "Another 50W of power per system adds enormously to the heat load," Pears said. "That is basically another half a person's heat output each time you replace each 15in monitor with a 17in one."

Even those replacing only one system may need to think carefully about space requirements. If you are running a small home office you need to consider whether there is enough room for a larger monitor, keeping in mind that to ensure eye comfort, you will need to sit further away from the screen.

Pears also warned that the continued take-up of cathode ray tube (CRT) monitors could have a detrimental impact on emerging screen technologies, such as flat panel displays, which consume less power but are currently more expensive. Obviously, market forces will have a large part to play in whether such technologies are successful, he said.

If you are convinced of the benefits of a larger CRT monitor, the US Environmental Protection Agency (http://www.epa.gov/) has some hints on how to keep power use and associated costs down.

With a larger system, it becomes more important to have a power-management system installed, and the EPA created the Energy Star Program in the early 1990s to provide a standard power-management environment. The EPA created partnerships with leading office equipment manufacturers in an effort to design and produce energy-efficient products. To meet Energy Star standards, a monitor, for example, must power down to no more than 30W when the equipment remains idle for a set amount of time — usually 15 to 30 minutes. To wake the system up, all you need to do is touch the keyboard or mouse.

Products that meet these requirements can use the Energy Star label. Monitors equipped with a power-management feature can save 60% to 80% of energy that would otherwise be wasted. The monitor will also then emit less heat and electromagnetic radiation.

The system has now been taken up in Australia, and most monitors (and other office equipment) meet Energy Star requirements. The New South Wales Sustainable Energy Development Authority (SEDA) notes that energy-efficient office equipment in the NSW commercial sector alone will save companies over $25 million in energy costs a year, and decrease greenhouse gases by 100,000 tonnes.

In 1997, US President Bill Clinton noted in his climate change policy launch that if everyone bought one energy-efficient product and enabled its power-management capabilities, the total US energy bill would be cut by over $100 billion in 15 years.

It is also sensible to turn monitors off, no matter what their size, at night and on weekends, as well as during the day when they are not going to be used for extended periods of time, according to the EPA Energy Star site. Most operating systems now also include power-management options that you may wish to explore.

Selina Mitchell

/1200 valued at $4,892.00!

Subscribe

to *Australian Personal Computer* today and not only will you **save** on the newsstand price, enjoy the **convenience** of **free delivery** and ensure that you never miss an issue of Australia's leading computer magazine, but you could also **win GCC Elite XL 20/1200!**

SAVE	$18.40	1 year subscription (12 issues) ONLY $65 ($5.42 each) saving $1.53 per issue
SAVE	$41.80	2 year subscription (24 issues) ONLY $125 ($5.21 each) saving $1.74 per issue

Find out more about this exciting subscription offer and subscribe on-line:
Check out our on-line subscription service at
http://www.apcmag.com/shop
Or find the new GCC Elite XL 20/1200 on-line at
http://www.gcctech.com/australia/ or call GCC on
Sydney: (02) 9674 8684, Melbourne: (03) 9562 1800
or Toll Free 1800 422 832 (1800 GCC TEC)

To receive next month's issue of Australian Personal Computer as part of your subscription we will need to receive your subscription details by the first Wednesday of the month of this issue of APC.

99APAPT

apcmag

SUBSCRIBE TO *Australian Personal Computer* NOW!

Phone 1800 252 515

Sydney
(02) 9260 0000

CONDITIONS OF ENTRY

1. Instructions on "How to Enter" form part of these Conditions of Entry. This competition is open to Australian residents only whose new subscription or renewed subscription for one year or more to Australian Personal Computer is received between 18 February 1999 and last mail 22 April 1999 and is stamped against a nominated valid credit card or, if paid by cheque, cleared for payment. Coupons are to be sent to Reply Paid 764, GPO Box 4967, Sydney 1028. Current subscribers, whose subscription falls due within the dates of the promotion, and who have renewed early, will automatically receive an entry in the draw.
2. The winning entry will be the first drawn at the promoter's premises, 54 Park Street Sydney on 28/04/99 at 11am by a representative of Australian Personal Computer. Employees of ACP Publishing Pty Limited, ACN 053 273 546, GCC Technologies Australia Pty Limited, ACN 084 409 727 their families and advertising agencies, are not eligible to enter. All entries become the property of ACP Publishing Pty Limited, the promoter, and may be used in future marketing promotions.
3. The judges' decision in relation to any aspect of the competition will be final and binding on every person who enters. No correspondence will be entered into.
4. The total prize, valued on 14 January 1999 at approximately $4,892.00, consists of a GCC Elite XL 20/1200 network laser printer with standard 64MB of RAM and a 50MHz RISC processor. The prize is not transferable or redeemable for cash. Any change in the value of the prize occurring between publishing date and the date the prize is claimed is not the responsibility of the promoter.
5. The prizewinner(s) will be notified by security post and published in the June 1999 issue of Australian Personal Computer, on sale on 20/05/99.
6. Permit No. TC/0360 issued under the Lotteries and Art Unions Act, 1901. ACT Permit No. TP98/2299 issued under the Lotteries Act, 1964. Approved by NT Racing & Gaming Authority Permit No. NT99/164. SA Licence No. T99/182.

JAGUAR DESIGN PTY LTD


YOUR
OWN
CD FACTORY
The Kodak IDE CD Writer
MY
ideas
MY
images
MY
words
MY
music
MY
choice
Kodak
CD-R
INFOGUARD
PROTECTION SYSTEM
Recordable
The Power is Yours.
IS ANYTHING POSSIBLE? Yes. With Kodak CD-Recordable writers and media you can create, share and store a massive 650MB of any form of data including audio, video, graphics, pictures and text. EASY? Super-simple to set up and use, inexpensive and discs can be read on any make of CD-ROM drive. TOUGH? Tough enough to last over a hundred years because of the patented Kodak Infoguard™ Protection System in every disc. SUPPORT? Sit back and relax, you'll have all the personalised technical support you need. So, whatever it is you have to do, with Kodak CD-Recordable technology, the choice is yours.
Kodak
FOR MORE INFORMATION ON OTHER KODAK DIGITAL PRODUCTS CALL


high sp
no time limits
With an ihug Internet account there is no limit to the amount of online fun you can have. With an ihug Diamond account there is only one flat-rate fee each month - $29.95. No hidden charges, no limits, just fast reliable Internet.
Or if you need less time online choose one of our other ihug accounts.
The only limits are the ones you set.
ihug
Flat-rate Internet for only $29.95* per month.
IHUG ACCOUNTS
ACCOUNT TYPE | MONTHLY FEE | HOURS PER MONTH | COST OF EXTRA HOURS
Diamond | $29.95 | Flate-Rate | -
Sapphire | $20.00 | 30 | 0.99c
Gold | $15.00 | 20 | $2.00
Bronze | $10.00 | 10 | $2.00
*Product Conditions Apply. All ihug accounts are subject to a joining fee of $49.00 and the Terms And Conditions that can be found on the ihug webpage.
www.ihug.com.au
THE INTERNET GROUP
phone 1

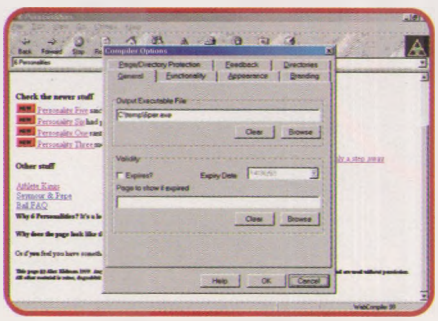

eed fun!
no speed limits
With Satnet you get high speed Internet for an unbelievable price. Satnet is up to seven times faster than a standard modem. This unique, state of the art technology beams your Internet feed direct to you from a satellite.
What could be cooler than that?
SATNET
Up to 7x faster than a standard modem, from only $49.00* per month
SATNET ACCOUNTS
ACCOUNT TYPE | MONTHLY FEE | HOURS PER MONTH | COST OF EXTRA HOURS
Diamond | $59.00 | Flate-Rate | -
Platinum | $49.00 | 60 | $2.00
*Product Conditions Apply. All Satnet accounts are subject to a $69.00 joining fee and the Terms And Conditions which can be found on the Satnet webpage.
www.satnet.com.au
3 62 92
Flexirent
THE INTERNET GROUP

WebCompiler and HTML2EXE 2.1

A definite problem with using HTML to develop a company intranet or, say, a training application is the need for a constant Internet connection at the client end. Oakley Data Services' WebCompiler and Update Computer Services' HTML2EXE 2.1 both attempt to remove this need. The basic aim of both compression packages is the same — to convert a Web site into an EXE file which can then be run on any Windows machine to allow visitation of what is in effect a virtual site.

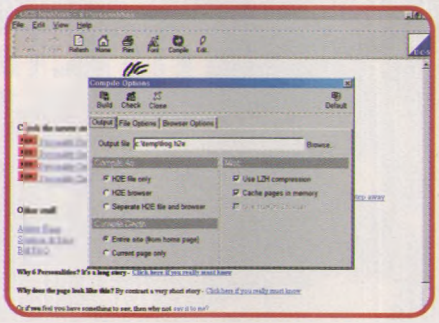
This sort of product would be most useful for secure documents — catalogues, training applications and so on. It's important to keep track of what is supported on either program — WebCompiler supports JavaScript (but not Java) while HTML2EXE 2.1 only supports basic HTML and images.

Both programs are easy to use. Follow a couple of predefined buttons, work out the location of the files you want to compress, and off you go. Both rely heavily on



an Internet Explorer-style interface, which means that program elements are laid out logically. Unfortunately, both programs have a few bugs.

Of the two packages, HTML2EXE 2.1 suffers the most in evaluation terms, mostly due to the rather odd nature of its compression. The interface presents you with the option of compressing a single page (the point being?) or the entire site. Fine, you think, choosing the entire site to compress and setting HTML2EXE 2.1 on its merry way. About 10 minutes later, you are presented with a list of error messages relating to missing files. A little investigation pinpoints the problem — HTML2EXE 2.1 is unable to differentiate between local and remote links, and so tries to capture the code and images for all of them! This really is quite a big strike against it, as it slows compression while it tries to work out what it can and can't find locally, and it creates problems with the end product. For some reason, HTML2EXE 2.1 also had



some problems finding some locally stored images from the test Web site *APC* used. Odder still, the finalised EXE had no problem then linking to any external sites, intelligently launching extra browser windows to do so.

On the plus side, it does allow you to specify the HTML editor to be used in conjunction with HTML2EXE 2.1, which allows for simultaneous editing and compression. User specification allows quick switching between editing with Dreamweaver and Notepad; both launched and saved without error. A rather nice touch is the ability to define the top left-hand corner logo to whatever bitmap you like — this would be ideal for a company promotion, for example.

The shareware version is limited to the production of EXE files with a 24-hour life span, which may not be the best way to present the product to any business where software purchases need to go through multiple decision makers — you'd have to recreate the site several times during evaluation, which could be painful. The site produced as an EXE file which weighed in at 1,474K, from a 1,627K site, although as noted above HTML2EXE 2.1 missed some images, so assessing the actual level of compression is a little difficult.

WebCompiler, on the whole, comes out on top of HTML2EXE 2.1. Simple compression is possible with a couple of mouse-clicks, but there's also a great deal of customisation available within the package, from corner icons and splash screens to multiple level and remote directory access. It's also a lot easier to define the end interface, from buttons to password protection. Most of this functionality has been lifted directly from Internet Explorer. The program requires IE to be installed in order to function at both server and client ends. This is an inconvenience for those who don't use IE. It also raises the question: how many people have no Internet/intranet connection at all, and still have a browser installed?

Site editing is also harder in WebCompiler than in HTML2EXE 2.1 — instead of being able to define an editor, you can simply select to view the source which automatically opens in Notepad, which isn't suitable for large files. The compressed EXE file came in at 1,778K, which is actually slightly under the '270K plus' the documentation suggests it adds to the average site. Unlike HTML2EXE 2.1, it had no problems with images on the site, and was bright enough to work out what was an external link. The help documentation was clear and concise. Testing it on a non-IE machine brought up a 'you need IE4 installed' error box, which was at least clean, if not entirely satisfactory.

Overall, both products present an interesting idea which has some obvious commercial applications, but both products still present problems — HTML2EXE 2.1 is still a little buggy, and needs to work out what a 'local' site is, while the IE4 dependency of WebCompiler is a problem in terms of cross-platform use.

Alex Kidman

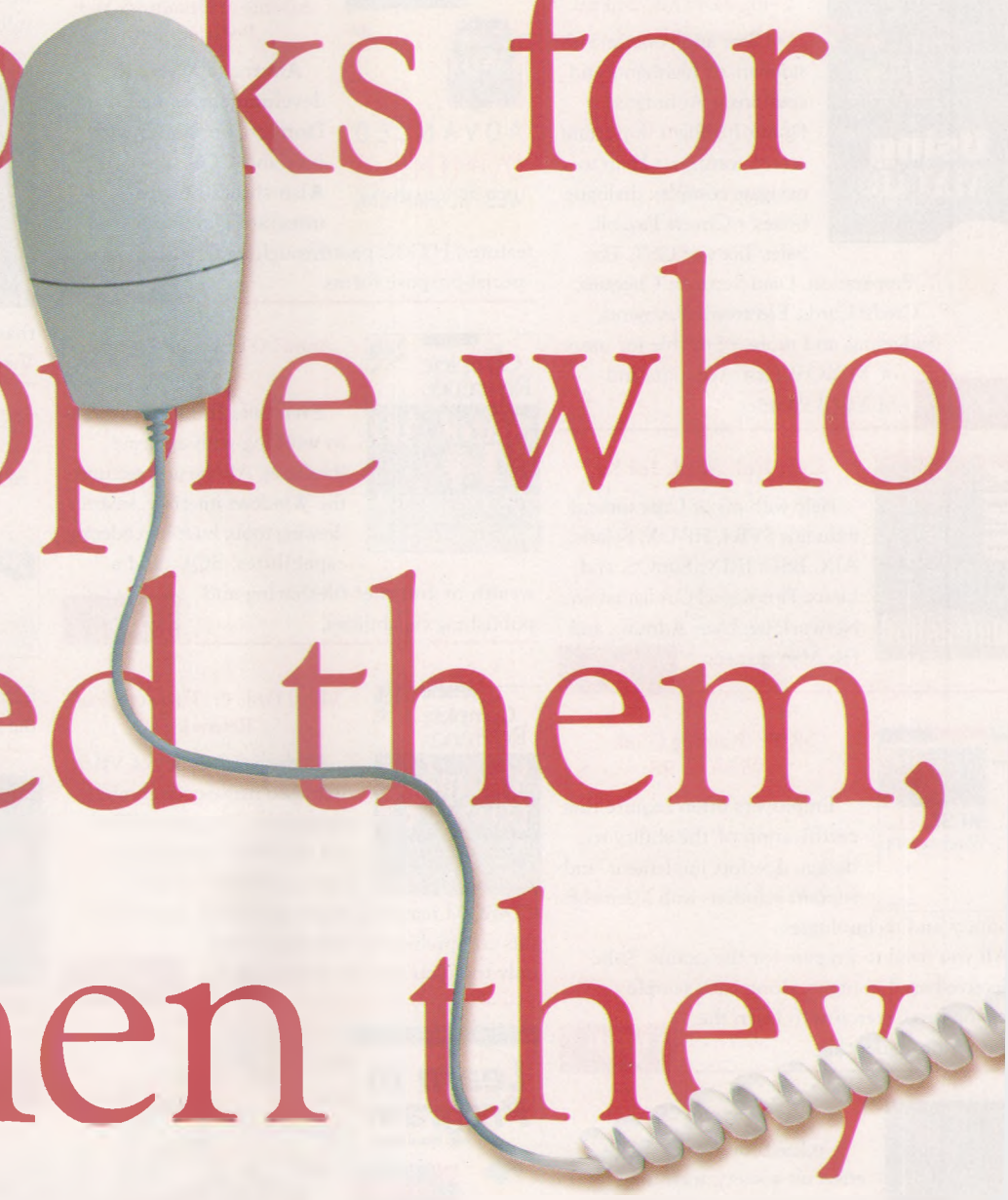
WebCompiler

Distributor	Oakley Data Services
Online	http://www.webcompiler.com/
Price	£99 (order online only)
In short	A good compiler, let down by its reliance on IE.

HTML2EXE 2.1

Distributor	Update computer services
Online	http://www.html2exe.com/
Price	£55 (order online only)
In short	Still a somewhat buggy release, but quite easy to use.

Computer books for people who need them, when they need them.

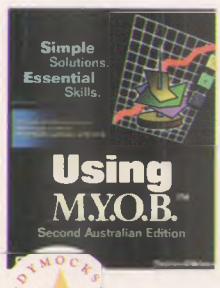


If you're working with, or indeed playing with Computers and IT, there's nothing more infuriating than wanting information and not having access to it.

The time you spend trying to figure out a software or a printing or a networking problem, can often be more trouble than it's worth.

It's for this reason that Dymocks not only carry one of the most comprehensive computer, technology and multimedia book categories we also offer you the opportunity to get your hands on this information when you want it.

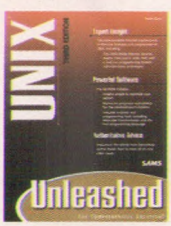
At Dymocks we are happy to reserve copies of the books you need, and if you're in a desperate hurry to get them, for a little extra we will courier them to you.



Using M.Y.O.B, 2nd Ed.

• Clear and concise with sidebars of highlights and cautions. • Annotated figures highlight important screen features. • Help to navigate complex dialogue boxes. • Covers Payroll, Sales Tax and GST, Tax Preparation, Data Security, Cheques, Credit Cards, Electronic Payments, Budgeting, and more. • Suitable for users of M.Y.O.B First Accounts and M.Y.O.B Premier.

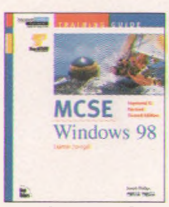
$44.95



Unix Unleashed, 3rd Ed.

Help with major Unix variants including SVR4, HP-UX, Solaris, AIX, BSD, IRIX, SunOS, and Linux. Plus Kernel Configuration, Networking, User Admin., and File Management.

$99.95



MCSE Training Guide: Windows 98

Employers often require this certification of the ability to design, develop, implement, and support solutions with Microsoft products and technologies.

All you need to prepare for the exams. Solid objective-based content, along with sample questions and exercises to learn the information in-depth.

$99.95

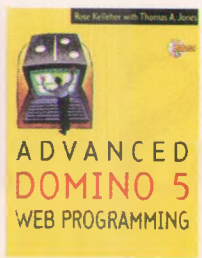


Time Bomb 2000

Updated coverage of Y2K's effect on society, including communications, power, transportation, finance, travel, medicine, education, social services, employment.

Expert assessments of the probabilities and consequences of failure. Best of all, contingency plans and fallback positions if the worst happens.

$29.95



Advanced Domino 5 Web Programming

Advanced Web site development using Lotus Domino Version 5 with Java and CGI.
Also shows how to integrate Domino 5's new features, HTML passthrough and special-purpose forms.

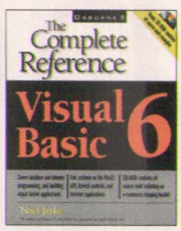
$126.95



AutoCAD 14: The Complete Reference

Everything from 2-D drawing to working with external databases. All the new features: the Windows interface, smarter drawing tools, built-in rendering capabilities, SQL, and a wealth of Internet filesharing and publishing capabilities.

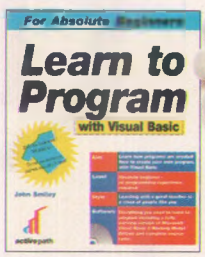
$89.95



Visual Basic 6: The Complete Reference

All the new features of VB 6: optimised native-code compiler, support for Dynamic HTML, and the WebClass designer. Complete with a bonus CD-ROM featuring ready-to-use VB applications, this comprehensive reference is the only tool you need to master VB 6.

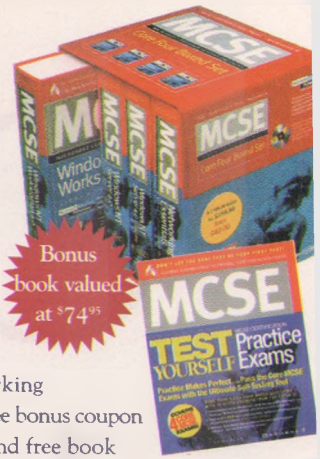
$89.95



Learn to Program with Visual Basic

Visual Basic, taught step-by-step, in plain language, and using a host of practical examples. Shows you how to build a Visual basic program from the design phase all the way through to delivery.

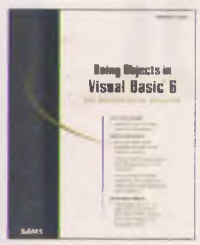
$59.95



MCSE Core Collection Box Set

Four outstanding books on the most important IT exams:
• Windows NT Workstation 4.0
• Windows NT Server 4.0
• Windows NT Server 4.0 in the Enterprise • Networking Essentials. Includes free bonus coupon for Windows NT 4 and free book *MCSE Test Yourself Practice Exams* valued at $74.95.

HB+CD-ROM $299.00



Doing Object in Microsoft Visual Basic 6

Intermediate level tutorial: OOP, using the VB IDE to create objects and interface with databases, web sites, and Internet applications. More technical information than the last edition. Features new Visual Basic.

$109.95



Cold Fusion 4 Web Application Construction Kit

Create full-blown web applications that run on your NT, Windows 98, Solaris, and HP Unix hosted web server. This edition will be updated for new features and options in Cold Fusion 4, the next major upgrade for this product.

$104.95



Platinum Edition Using HTML 4, XML, and Java 1.2

Teaches the technologies you need to create sophisticated websites. Shows developers how to build the most popular Web applications: animation, interactive forms, Web databases, e-commerce, and Web broadcasting.

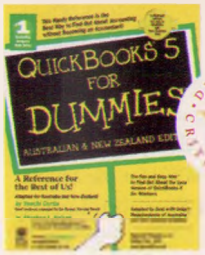
$129.95



Special Edition Using HTML 4, Fifth Edition

Defines the HTML language in its present form: which tools are best, how to code HTML, the basic principles of Web publishing and graphic design. Plus how to take your site into the next millennium with interactive and competitive technologies, including secure transactions, databases, audio and video, and practical programming techniques.

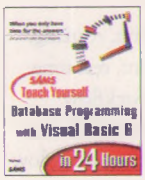
$99.95



QuickBooks 5 for Dummies Australian & New Zealand Ed.

DYMOCKS CRITICS CHOICE

Includes many uniquely Australian features: a listing of essential Australian Internet sites to help your business grow; Sales tax, GST and QuickPayroll; Prescribed Payments (PPS) and how to set this up in QuickBooks. The book has also been brought into line with local tax systems and reporting requirements. $29.95



Sams Teach Yourself Database Programming with Visual Basic 6 in 24 Hours

The fast, simple way to learn Visual Basic for database programming. Designed to be relevant to the first time database programmer as well as the adept programmer from another programming paradigm. $39.95



Sams Teach Yourself UNIX in 24 Hours, 2nd Ed.

Starts with an introduction to UNIX, then covers file handling, pipes and filters, the vi and EMACS text editors, shells, job control, printing, and connecting to remote computers via the Internet. $39.95

Illustrator 8 Magic

Work magic in Illustrator: • Composition • Images • Type • Filters • Identity • Info graphics • Dimension • Multimedia. All techniques created in Illustrator 8. to use new features and commands, using only native filters and tools.



$89.95

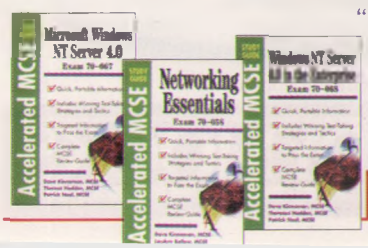
Accelerated MCSE Guides- Core Four Pack



Save more than $30.00 on this shrinkwrapped pack of four individual MCSE study guides. The Core Four Pack consists of:

- Networking Essentials
- Windows NT Server 4.0
- Windows NT Workstation 4.0
- Windows NT Server 4.0 in the Enterprise.

Handy format, study anywhere, pocket sized books containing page after page of winning test strategies from MCSEs who have "been there".



$180.00



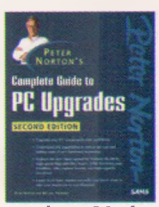
Sams Teach Yourself Windows 95 in 24 Hrs, 3rd Ed.

"Quick-start" chapters on how to use Windows 95, integrating Internet Explorer 4 with Windows 95 and using the Active Desktop. Other topics include: the Windows accessories, mobile computing, hardware issues, multimedia, and Windows tips and tricks. Each chapter ends with Q&A, Quiz and Exercise sections. The style is relaxed and friendly. $39.95



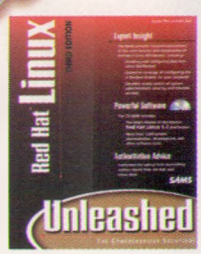
The Waite Group's COM/DCOM Primer Plus

Explanations and coded examples will enable the reader to completely absorb the essentials of programming in COM/DCOM. How you can create and use interfaces, packaging functionality in binary objects that can access each other despite having been written in different languages, to create software and roll out new releases at a competition killing pace! $99.95



Peter Norton's Complete Guide to PC Upgrades, 2nd Ed.

All the latest technologies including the entire Pentium II family (Celeron and Zeon), DVD, USB, Firewire, and v.90 modems.Updated coverage for Windows 98, new motherboard and memory technologies. More troubleshooting and detailed step-by-step installation information. $69.95



Red Hat Linux Unleashed, 3rd Ed.

Version 5.1 boasts a new and improved installation program, updated libraries and a host of other improvements. The book covers everything from managing the start-up and shut-down processes to configuring the system as an Internet server. $109.95



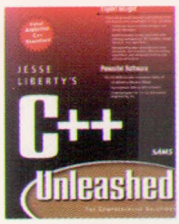
Database Developer's Guide with Visual Basic, 3rd Ed.

Includes coverage of : • Data access objects and data-aware controls • Database and query design concepts. • Database front-end design. • Advanced programming for data access and automation. • Multiuser and client/server database front-ends • Databases, Intranets, and the Internet. Plus: ActiveX controls (VB/database related) • OLE DB • Active data objects (ADO) • Advanced data connector (ADC). $129.95



Sams Teach Yourself Java 2 in 21 Days, Professional Reference Ed.

The best-selling Java tutorial on the market. Acclaimed for its clear and personable writing, for its extensive use of examples, and for its logical and complete organisation. $129.95



C++ Unleashed

Advanced object analysis and design strategies and implementation issues associated with memory management, STL container classes, iterators, and algorisms. Dynamic data structures recursion and advanced hashing/parsing techniques. $109.95



Search Engine for the Worl Wide Web, 2nd Ed

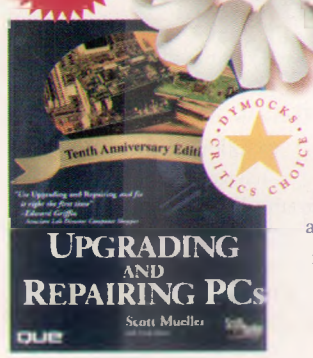
Harness the hidden powers o the major Web search engine and save yourself hours c frustration with the Secon Edition of this easy-to-us guide- updated to reflect recent overhauls in the major search sites. $24.95



Accelerated MCSE Study Guid Windows 98 (Exam 70-98)

This handy, pocket-sized guid gives the inside scoop on test procedures; costs; restrictions rules and misconceptions as well as full details on all the network services, user access, an troubleshooting facts that the exam covers. $52.95

Special Dymocks price



DYMOCKS CRITICS CHOICE

Upgradi & Repairi PCs. 10 Anniversa Editio

This edition h a new philosop and organisati based arou Intel process families, chipse and motherboar instead of the c IBM PC fam approach: Tota new chapters c printer upgrades, repairs and maintenan file systems and data recovery, restructur coverage of storage, I/O, and bus Also new CD ROMs.

ORIG: ~~$109.95~~ $99.9



Sams Teach Yourself Web Publishing with HTML 4 in 21 Days, 3rd Professional Ed.

Easy enough for the beginner, an indispensable reference for experienced web authors. Learning how to publish pages on the Internet and the World Wide Web for everyone from hobbyists to students to business users and professionals.

$119.95



MS Internet Explorer 5 At a Glance.

Solve problems and get work done with the latest version of Microsoft's popular Web browser. This reference title delivers concise answers and is an ideal desk-side companion for users who need quick problem-solving information. Quick, visual solutions to your day-to-day software problems.

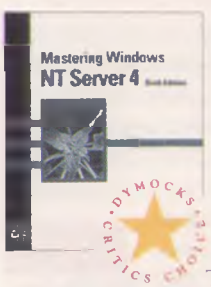
$44.95



The Macintosh Bible, 7th ed.

The most popular Mac book ever, completely revised and extensively updated. Includes coverage of Mac OS 8.5, the Internet, and more. The companion Web site has tips, news, and updates on Mac developments.

$69.95



Mastering Windows NT Server 4

New edition of NT's classic book with the latest about Service Pack 4, ZAW and System Policies. How to make NT work in an enterprise network. NT architecture, TCP/IP in print, Internet Info Server and the most valuable Administrator CD ever, containing an electronic version of the book available on screen as the reader works.

$99.95 Hard cover



Running Microsoft Internet Explorer 5

Comprehensive, example-filled, easy to use, and loaded with tips from the software experts. Two-colour interior makes it easy to follow and enhances user navigation. Networking and troubleshooting issues. As well as how to build Web pages using Internet Explorer tools.

$99.95



MSCE: Networking Essentials Study Guide (Bk/2CD) 2nd Ed.

Everything you need to pass the Networking Essentials exam (Course 578; Exam 70-58) for the MCSE as well as the Microsoft Certified Solutions Developer (MCSD) certifications. 2 CD's with sample test program, and the Networking Essentials #1 CD-ROM computer-based training course from LearnKey yours free with this book!

$79.95



MS BackOffice Small Business Server 4.5 Resource Kit (Bk/CD)

Loaded with essential tools and references to manage product integration, simplify installation and admin., and enhance system performance. The information comes direct from Microsoft product groups - a must-have for anyone with Small Business Server!

$160.00



Mastering Perl 5

The UNIX fundamentals you need for programming in Perl. Every section begins with a Jumpstart chapter which walks you through a program demonstrating the key concepts of the section. Those who have found Perl too intimidating will love Perl 5 as it takes the fear out of the subject.

$65.00



MCSE: NT Server 4 Study Guide (Bk/CD) 2nd Edition H/C

Essential for candidates for the Implementing and Supporting Microsoft Windows NT Server 4.0 exam (exam 70-067) for the MCSE, or Microsoft Certified Product Specialist: Internet Systems Specialist certifications. 2 CD's with the NT Server 4#1 CD-ROM computer-based training course from LearnKey Inc.

$79.95



Programming Microsoft Outlook & Exchange.

Outlook 98 tracking, routing, knowledge management, real-time collaboration, and workflow applications. How to build Web-based solutions with ASP and CDO. ADSI, adding workflow to applications, and migrating solutions to the Windows NT(r) 5.0 operating system.

$99.95



Java Studio Blue Book

Unique Blue Book editorial design describes programming concepts and technologies behind Java and JavaBeans. Create compelling, functional Web sites in limited time. CD with resources for acquiring free JavaBeans and a version of the Java Studio software.

$69.95

Phone 1800 805 711 during business hours for your nearest Dymocks Bookstore, or order-on-line at www.dymocks.com.au.

1800 805 711

DYMOCKS
BOOKSELLERS

Forum

We welcome commments and suggestions. Send correspondence to *APC* Readers' Say, PO Box 37, Sydney 1028; or by email to: APC@acp.com.au.
All correspondence becomes the property of *APC* and is subject to editing.

Alpha praise

I recently read your December issue. It was the first time I bought your magazine. I purchased it mainly because of your information on PCs under $2,000 — I was in the market for a new computer and it looked like a great place to start. You guys saved me a lot of time and stress after reading about the Alpha PII-350. Living in Melbourne it sounded like a great opportunity to get a fantastic system for a sensational price.

In the end I actually went for the new Celeron 400 chip instead of the PII-350, plus a Diamond Viper V550 graphics card. After putting in my order, the people at Alpha had a bit of a struggle getting my system to me as quickly as I would have liked, but once I got it, boy was I rapt. The computer runs absolutely sensationally; I did not have one problem, and every piece of software and hardware had been installed and configured perfectly. I would have to say that I would recommend Alpha Computer to anyone living in Melbourne. The system runs so well, at a great price [about $2,300]. By the way, I now subscribe to *APC* — it's a great mag.

Alastair Isherwood
Mulgrave, Victoria

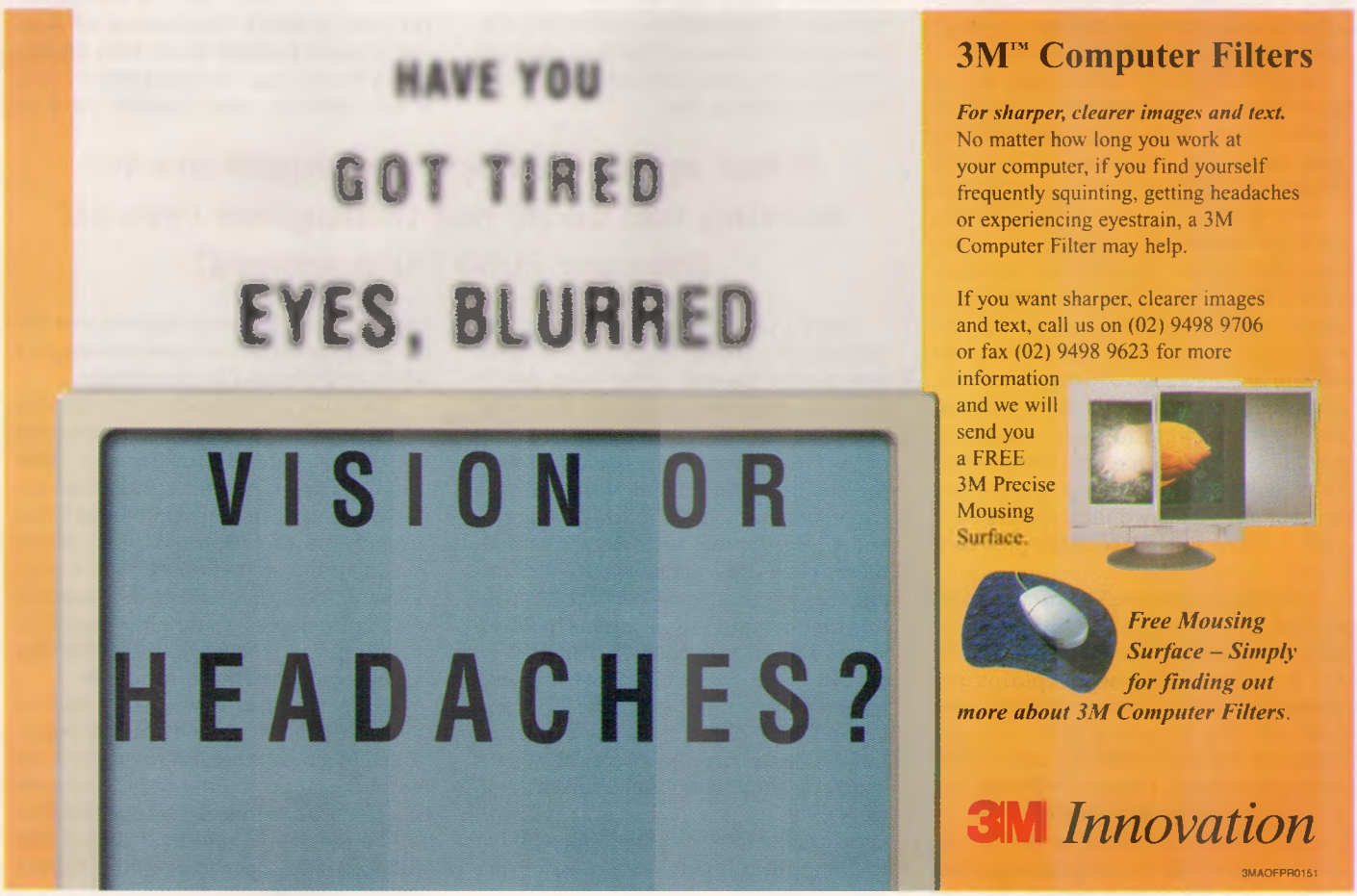
Ed note: Well done Alpha. We also fielded a couple of complaints from readers about Alpha, mainly regarding the unavailability of 350MHz PII-based PCs, as featured in our December reviews. An Alpha representative told us that these supply problems were due to: the company not anticipating the surge in demand in its forward forecasts; a general shortage of PII 350s from November onwards; and the fact that regular customers took priority over new customers. Alpha says it is honouring its commitment to supply machines with the specifications and pricing featured in our review, subject to changes to general componentry.

OS shoot-out

I think an in-depth comparison of the major operating systems would make a fascinating article. Put Windows 95/98 up against NT, OS/2, Linux and Mac OS to compare ease of use, installation, hardware compatibility, available software and *stability*.

Peter Faulks
Internet

Ed note: Good suggestion. It's not easy to properly compare OSes, but we're going to have a crack at it in our July issue.





Hijacked

The front door may be bolted and barred, but thieves could be making off with the family silver out the back door.

By Helen Dancer

There's an old story about a man who was so paranoid about burglars that he bolted and barred the front door. He spent sleepless nights on a chair in the hallway with a shotgun, waiting for would-be plunderers to try to steal his worldly goods. So obsessed was he with guarding the front door that he didn't notice when thieves broke in through the back door and stole everything he had been so jealously guarding.

I'm beginning to feel the global obsession with the year 2000 is a bit like the front door of the man's house — what opportunities or dangers are we missing out on by not taking our eyes off it for a second?

Regrettably, there's still a long way to go for many, and for much of corporate Australia that has done its door, bolt and padlock testing, the door will remain firmly shut until the new year, regardless.

IDC analyst Graham Penn said that the time between now and the end of the year will be the most critical for hardware vendors, since the vast majority of people who have put their house in order won't be messing with the formula by adding any new pieces to it. Keeping the status quo will be the priority. He considers the worst thing in such a situation would be to add some new components to a perfectly functioning system and have it fail. You would then have to spend more time ascertaining which aspect was at fault.

So while it's likely we'll see a significant decline in hardware spending over the next two quarters, Penn also believes that the expected slowdown explains the strength we've seen to date. He anticipates that after the drop-dead date, the phenomenon will also positively affect hardware expenditure. The very active market of last year can largely be explained, he believes, by the purchase of test servers and storage which would have been used offline over the testing period. He also believes that when the perceived danger zone is past, those test purchases will be followed up with more of the same, making the market buoyant again.

QSP's regional general manager Ross Liston also recognises the pattern of interrupted spending, but says the emphasis is different — much has been spent on the part of the system which is mission-critical. Upgrades of applications have happened well in advance, and they have been tested extensively on an existing back end, he said. It's the back end which has been meted out with the Bandaid treatment. Organisations are making sure the mission-critical stuff works on the back end and are holding fast to that while they cross the finishing line.

What opportunities or dangers are we missing out on by not taking our eyes off the year 2000 for a second?

There's also the issue of testing, but according to Liston, this will be resolved well before the end of the year, due to multiple reporting structures. But most of our major enterprises are subsidiaries of overseas companies, and this means there is no standard end of the year. So while some companies follow the June 30 end of year, others, typically UK companies, follow the calendar year, and others use any month in between. Add to this the fact that organisations' balance sheets require estimates 12 months in advance, and you realise that by the end of February, most will have forecast beyond 2000 and should know whether their systems can cope. Given that next year is a leap year, and February will have 29 days, Liston observes, most will know well before the year's end whether the Bandaids they have applied are going to stick.

It's all evidence of the politics of careful business management and the need to balance the budget and not let IT spending blow out, but in the end it serves to reinforce the notion that companies are bunkered down pending the end of the year. This puts them at risk of losing sight of the bigger picture or, if not losing sight of it, watching it sailing away. Penn observed that projects not grasped and followed through will inevitably take a different form or have a different function by the time they are picked up — next year or whenever. Internet Industry Association of Australia board member Bruce Linn agrees, citing the analogy that an Internet year is two months, and that the pace of change has significant implications for the projects we're not concentrating on while we focus on Y2K compliance.

The realm of ecommerce is an obvious example, Linn said. Whereas Canada and the US are embracing epayments, Australia is falling well behind. Businesses are not jumping in, and he sees that as being largely due to the banks' reluctance. Whether they are blindsided by the technology or simply have insufficient resources to do both, he said it's nevertheless a frustrating paradox, since it's the banking industry which has the most at stake.

TS Eliot crafted a wonderful line of poetry describing "the end of all our beginnings" in which we return to the place we first started, opening the door and knowing it for the first time. Let's hope that that will be the case, rather than that of Mrs Hubbard, who opened the door to find nothing there.■



© 1999 Lotus Development Corporation, an IBM Company. All rights reserved. Lotus and Lotus Notes are registered trademarks and Notes and Domino are a trademark of Lotus Development Corp. IBM is a registered trademark of International Business Machines Corp. Superman and all related characters, names and indicia are trademarks of DC Comics ©1999. Used with permission. SOMDEV 60



It's not the end of the world

It has been 50 years since the development of the first digital computer and it is the last year of the 20th century. It may also be the end of civilisation as we know it.

By Jeremy Horey

There are people preparing for the disintegration of society as the clock ticks over to 12.00am on 1/1/2000. They believe that computers play such a crucial role in our society, and that because so many computers have problems with the Y2K bug, society will not survive. They plan to hide out in fortified cabins in the hills until the worst is over.

Even responsible commentators are suggesting you take some money out of the bank and stock up on food before the last day of the millennium. Perhaps it is wise to take some precautions.

I am not an expert on the Y2K problem, although I have read extensively on the subject. I am going to stick my neck out anyway and tell you what I think will happen on January 1, 2000. Life will go on as normal. First of all, it is a public holiday and if any business is going to have problems with their computers getting the date wrong, it is not likely to happen until people actually go back to work and switch them on. When they do get back to work there may be a few failures, but this will have almost no effect on business.

I also believe that all essential services will be unaffected. I believe that embedded processors in fridges and VCRs and cars will keep on working as normal. I don't believe the prophets of doom.

I am not an expert on the Y2K problem, but I have had some experience with this issue. I was working with the Australian Tax Office as a programmer more than 15 years ago when the office's information storage system was redesigned.

At that time, the dates that were stored as two digits were expanded to four digits. Although I wasn't involved in this work, I remember the discussions about it well.

Since then I have followed the issue with some interest. A lot of the noise about the Y2K issue comes from the media. It is, after all, a great story. Here are all these computers doing vital jobs around the world and they have a fatal flaw. They can't deal with dates after 1999. Suddenly, at the end of the millennium, they will all stop working and we will be left high and dry without our electronic helpers.

It makes good copy and also feeds into other ways of thinking. There is still a distrust of computers. To some people they are still mysterious, with a nature that can be good or evil. Also, we are not only at the end of a century, we are also at the end of a millennium. This has a dramatic effect on the way people think about things.

To some people computers are still mysterious, with a nature that can be good or evil

Whatever you think about the origin of the way we number years, there is no evidence that the numbering system is anything more than an accident of history. But although there is no significance in the end of the second millennium of the Christian era, it does affect the way people think about things. There is a feeling that 1/1/2000 represents a new start and that we should finish up as much as possible this year to make room for new things in the next century. People are also planning special events for 2000.

But just because people see some special significance in the date, it doesn't mean that computer systems will fail in sufficient numbers to have any major impact.

In the developed world, large amounts of cash have already been spent fixing problems arising from the Y2K bug. In my experience, large institutions like power companies, banks and telecommunications companies make sure that they don't jeopardise their own future. Even if they don't complete all their Y2K projects on time, they will have fall-back plans in place.

For other bodies, the Y2K problem may not be seen as important. But if these bodies do not fix their Y2K bugs on time, what will happen? At worst, they may be forced to turn back the system dates on their computers, manually date their accounts and give their clients slightly longer to pay.

But what about embedded processors? How can we know that they won't fail on us? Of course we cannot be absolutely sure. But only the most foolish programmer would build an embedded processor that depends on the correct date to operate, if there was no way to change or reset the date. Obviously no programmer could be sure that the processor would always have power to accurately keep track of the date.

So it follows that while we cannot completely rule out stupid programmers, almost every embedded processor that depends on having an accurate date will have some way to set the date. So if these devices do go wrong on 1/1/2000, all we have to do is turn back the date to some time before the end of 1999. This should give us breathing space to either fix it or find a workaround, or to decide that these devices are not worth saving anyway.

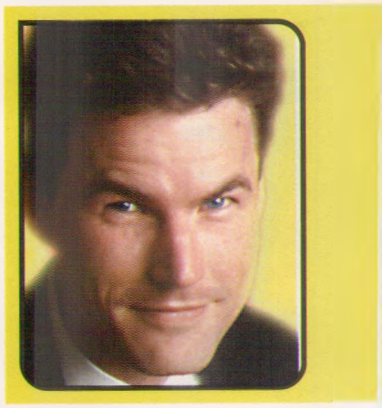
I am optimistic about Y2K problems. I don't suggest that we take them lightly, but on the other hand, let's not set off to some hidden lair at the end of 1999. Let's stick around and celebrate the start of another thousand years.

You can contact Jeremy Horey at jeremyh@techtalk.com.au.

Under a dictatorship the trains might run on time, but it's invariably at the cost of innovation, and who knows what else.

By Bruce McCabe

Monopolies' money



Occasionally, when conversations turn to topics such as unemployment, crime, or poor government, we hear a voice pipe up: "What this country needs is a dictator!". Mostly, statements like this aren't made seriously, but they reveal a frustration with the slow pace and indecisiveness of modern democracy. Tough action without the shackles of human rights activists and other 'do-gooders' might be decisive in, say, cleaning up crime.

In the real world, of course, any dictatorship or pseudo-dictatorship might get the trains to run on time, but it always comes at the cost of corruption, censorship and human rights abuses. Such things are not always immediately apparent to everyone. It wasn't that long ago that many Australians looked with admiration to Dr Mahathir for getting the Malaysian economy moving, enticing foreign investment, raising education levels and embracing high technology. Some of his rhetoric was annoying, but Mahathir was admired for his strength and his ability to 'get things done'. Now the Anwar Ibrahim case has exposed to everyone what has been taking place in Malaysia all along. Fact is, the wise, benevolent dictator that gets things done, respects the rights of others, and refuses to abuse his power just doesn't exist.

To my mind, monopolies are just business versions of dictatorships and, since the DOJ case against Microsoft, the term has become very topical in the IT industry once again.

In the IT world, you *can* make a case for the benefits. Talk to any IS manager about the challenges in their job and you will be talking about standards and interoperability before you know it. Differences in networking protocols, being unable to open documents sent by customers or suppliers (or even between departments), the challenges of interchanging records between databases, or the difficulties of supporting users with different software profiles are just a few examples of issues they have to cope with every day. Standards are important to them. Standards are so important that they often find it more valuable to install a good solution that has 90% market share than an excellent solution with 5%, because the latter choice represents bigger challenges when it comes to finding staff with the appropriate skills, adapting the package several years down the track, or making it work with other software. The risk that the supplier won't be around in a few years' time is also greater.

Monopolies are just business versions of dictatorships and, since the DOJ case against Microsoft, the term has become very topical.

When one technology dominates, it sets standards by default, and no-one will argue (except Apple diehards) that Microsoft and Intel have managed to do just that when it comes to commercial PC installations. The Wintel partnership, through its own dominance, has simplified at least one decision for the IS manager. In nine cases out of 10, he or she no longer has to choose between Wintel and another platform, but between which PC supplier and which version of Windows. They know that components are cheapest, skills are easiest to find, suppliers are most plentiful, and the greatest number of applications can be run on this platform, anywhere in the world. Any advantages a Mac might have in features or usability are dwarfed by the benefits of going with the worldwide 'standard'.

Without monopolies, standards need to be agreed on by multiple companies with competing interests. The goal of every business is to return a profit, and to look for ways to differentiate and gain competitive advantage. Sitting down at the table with competitors to eliminate the differences goes against this philosophy somewhat, and history has shown us (that is, Unix) just how difficult this is in practice.

So monopolies, or pseudo-monopolies, make standards, and in the IT world this matters — a lot. But what is the downside? The first thing we think of is usually pricing, which either rises or doesn't fall as rapidly as it should. Interestingly, it is difficult to make a case against Microsoft on this one, since per-licence pricing has remained exceptionally stable, while more features have been added over time. (Instead, Microsoft has made licensing progressively tighter by dropping concurrent-user rights and removing rights to install second copies for home use, for instance). We also tend to think of reduced innovation and lower quality (instability/more bugs in new releases) as a consequence of insufficient competition.

But the real downside of monopolies, the one which outweighs any positives, and the reason they can never be tolerated, is that they inevitably hurt the 'little guy'. Just as a dictator robs a dissident of freedom of speech, rights to travel and work, or even liberty, a giant in the IT industry can hurt a startup with a hot new product by pressuring partners and customers to drop it, by writing code to ensure the product runs poorly, or by simply stealing features for itself. Fact is, the big benevolent company which gets things done, still respect the rights of others, and refuses to abuse its power, just doesn't exist.

Bruce McCabe is Research Director for GartnerGroup.



Satisfaction

'I told you so' is possibly the most irritating and most satisfying phrase in the English language. It declares foresight, insight, superiority and, of course, tactlessness.

By Julian Ehrlich

But 'I told you so' is but entree to the main course of 'what goes up must come down' — uttered smoothly, with an air of world-weary detachment, an attitude essential to hiding the eager anticipation of that rare but oh-so-tasty dessert, *Schadenfreude*.

English is lucky to be able to borrow so much from other languages, because, though all humans at some time feel that peculiar happiness at another's misfortune, only a language as precise as German could have a word to specifically describe that mean-but-oh-so-tasty emotional state. It extends from relishing residential peccadilloes to savouring the sound of crunching glass as a crass, rude driver of a flashy sports car loses one engagement.

For MacBigots (I admit this weakness, dear friends), Schadenfreude is the rounded, full-flavour experience of reading about the travails of Microsoft.

Friends and critics alike will remember my repeated assertion that Windows 95 would be Microsoft's best vintage, a year when products (mostly) worked, in which 'power users' could mostly understand how Microsoftware functioned.

The frying pan of revenue sizzles still, well past Windows 95. But the heat is off. Microsoft is no longer cooking with gas.

The symptoms abound, evidenced by progressively greater resistance to market power. Resistance takes several forms: anti-monopolistic legal challenges which the US Government cannot avoid lest anti-monopoly legislation ossify; public campaigns to remove Windows from new computers and extract refunds; and the recognition of the ever-growing expense of trying to achieve stability in excessively complex systems and applications.

Microsoft's Pythonesque response to these challenges is astonishing. The press recently reported that Microsoft had resorted to fabricating a video to demonstrate the effects of removing Internet Explorer from Windows 98. Lawyers, not universally loved, can be relied upon to finetooth-comb an opponent's evidence. Microsoft got caught. Perhaps Microsoft should add the role of 'vice-president — evidentiary continuity' to prevent a recurrence?

Microsoft apologists argue that any market dominance is justified by innovations in applications and system software. The real problem is that the entire market must conform to Microsoft's definition of 'innovation'.

The real problem is that the entire market must conform to Microsoft's definition of 'innovation'.

Windows 2000 has been reported to have 35 *million* lines of code. A statistic that means what?

A modern warship's fire control system ('fire' as in 'Aim . . . FIRE!') defends the vessel against 'inwards' and launches 'outwards'. A complex task. Such systems have 30 to 35 million lines of code. How can an ordinary desktop computer used for word processing, spreadsheets, Internet access and sorting lists ever need the same complexity and more millions of lines of code are yet to be added for word processing, spreadsheets, and so on!

This is innovation in volume rather than intellect. Bigger, more, grander and extra are not always better. What about more efficient, more stable, more predictable? I would really like commands that worked the same way in all applications, especially if those applications come from the same vendor. While wishing . . . how about settings that don't change themselves?

Functionality in Microsoft Office-related applications is now so great that most users never learn more than say 50%, 30% or 70% of the individual applications' features. In this age of inter-organisational collaboration, producing, sharing, editing and reviewing documents becomes tortuous as fonts, styles, structures and all manner of little bits and pieces are incompatible between organisations. And that is if they are using the same release of a Microsoft product.

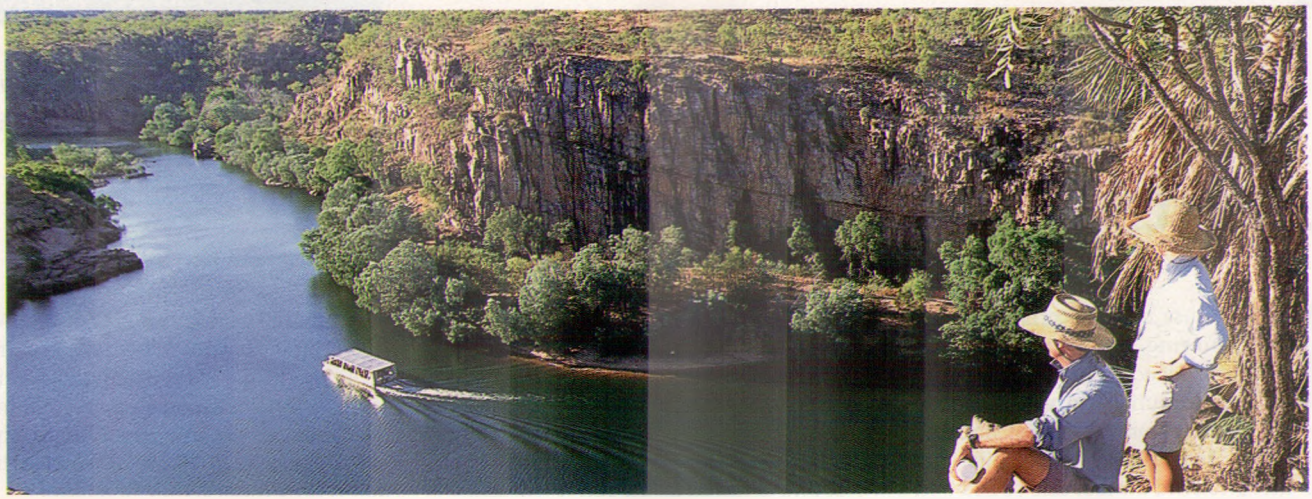
Perhaps you, dear reader, don't believe me. A test: Can you *absolutely, reliably* get something as trivial as page numbering to work in all Microsoft Office applications first time, every time? Who can? The year is 1999. Microsoft has been providing page numbering in various applications for how many years?

That is the practical, day-to-day consequence of market domination. Almost no-one can produce an alternative because dirty deals between a dominant player and its dependent distributors and suppliers crush the small.

The resolution to the market domination problem, like AT&T, is to break up Microsoft. The value of AT&T plus the seven new 'Baby Bells' was very much greater than before the court-mandated break-up. A Microsoft broken up into say, Operating Systems, End-User Productivity Applications, Education Applications, Entertainment Applications, Development Tools, and Enterprise Services, would become even richer than it is today — but would not distort entire markets.

Microsoft will be broken up. If the courts fail, then Microsoft, like IBM, will break itself into truly separate divisions if for no other reason than to be able to manage its mushrooming internal complexity.■

AUSTRALIA'S NORTHERN TERRITORY



Above: A top view of Nitmiluk (Katherine Gorge). Below left: Snapped every day, by tourists.

3 nights from $742.*

Includes airfares to Darwin and accommodation



Add a trip to Kakadu/Katherine

2 days Kakadu Self Drive from $199**
Or
2 days Katherine Self Drive from $199

SYDNEY	from $742
MELBOURNE	from $752
BRISBANE	from $702
ADELAIDE	from $682
PERTH	from $722

You've always wanted to go. And at this price you just can't put your trip off any longer. So either let a friendly Territorian help you plan it (freecall 1 800 682 831), visit our web site www.nttc.com.au, or see your licensed travel agent.

Territory Discoveries

TALK TO A TERRITORIAN
FREECALL
1 800 682 831
www.nttc.com.au

*Price per person twinshare, ex Sydney. 3 night package includes economy class airfare and accommodation only. Kakadu/Katherine add-on is available only with the purchase of a 3 night package and must be taken consecutively with the 3 night package. Prices do not include airport taxes and are subject to change without notice. Subject to flight booking and availability. Conditions apply. Valid for travel from 3/4/99 to 30/6/99. Prices on application for travel after 30/6/99. **Self drive includes vehicle rental, 2 night's accommodation and boat cruise.

NTT0666/R/APC

YOU'LL NEVER NEVER KNOW IF YOU NEVER NEVER GO

Videoconferencing is becoming popular, and the price of cameras is dropping accordingly.

Lights, cameras, action!

The use of videoconferencing is growing, and with it, the price of videoconferencing cameras is dropping sharply. You don't need to spend a fortune or fall back on second-rate technology — it's quite easy and cheap to send images and sound over the Web. Price Watch went in search of the cheapest videoconferencing cameras we could find.

The same cameras are also used in producing all the various Web camera sites on the Net, with everything from the Almost Amazing Turtle Cam (http://www.campusware.com/turtles/) to the University of Notre Dame Dome (http://lisa.ee.nd.edu/DomeCam/) and several other and seedier (and probably more famous for that matter) Webcam sites. It would be worth checking with your ISP before setting up a Webcam site. Because it projects continuous pictures, you need a semipermanent connection at least, which isn't cheap.

Web cameras can enhance email and other communications a great deal. After all, there's nothing like being able to see the person you're communicating with, and most cameras come with a reasonable range of video software.

The broad trend in videoconferencing equipment is towards USB connectivity, and *APC* examined USB videoconferencing cameras last month (see *APC* March, page 116). The three cameras examined there were all recommended by the vendors Price Watch contacted, with a general preference towards the Logitech QuickCam Home. Only one of the vendors contacted could easily come up with a non-USB solution when asked. Most retailers came in reasonably under the RRP of the cameras they suggested.

It was interesting to note the large number of retailers that didn't stock videoconferencing cameras. Most cited cost and demand as the main reasons. Of those who did stock them, however, most were reasonably aware of what their products could and couldn't do.

The salesperson at the International Software Warehouse was extremely knowledgeable, explaining what a USB port looked like and its advantages. He also offered other camera options when we inquired and pointed out that the alternative camera suggested (the Compro PS39) had night-vision capability, although he was somewhat at a loss to suggest a (legal) use for such a function.

The salesperson at City Software was keen to point out that a USB videoconferencing camera would automatically be compatible with iMacs and "virtually any Pentium II-based system".

On the less impressive side, the salesperson at Mail Order Software Australia assured us that the Kodak DVC323 would be able to send video and sound from one kit, which was incorrect. As noted in our review last month, the one drawback with the Kodak camera is the lack of an inbuilt microphone, which he assured us came with the pack. In a similar goof, the salesperson at Forte computers could only tell us that the Logitech QuickCam was "around $250" but that it came with no software, and that another camera may be a better buy. He then advised us to check the Logitech Web site in order to work out what the camera could do. While it's certainly a good idea to do a little research prior to making a purchase, it's not unreasonable to expect a salesperson to know at least a little about the products they're selling!

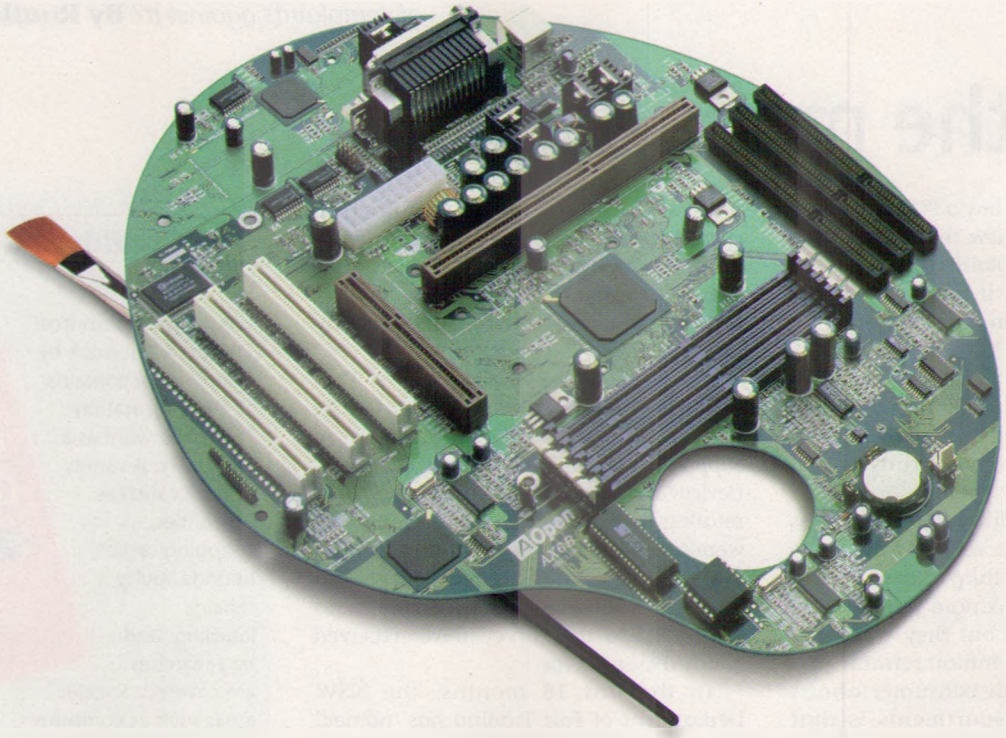
Overall, the cheapest option we found was the QuickCam Home Camera from Ecom Computers, although this was an OEM version lacking the normal bundled software. The staff were quick to point out, however, that for videoconferencing all that should be needed is Microsoft NetMeeting, which is available as a free download from the Microsoft Web site.■

Our charter and method

Price Watch is an exercise in comparative technologies and relative prices. All investigations are conducted anonymously, and records are kept of conversations. Prices and system capabilities printed here are provided by the sales staff at the offices we contacted, and all information is as supplied. While we assume that these are correct, we cannot accept any responsibility for errors or omissions. Neither will we be held to account by companies mentioned here for omissions to product ranges or system capabilities. The responsibility rests with sales staff to provide adequate information, as the company would expect them to do with every customer.

Videoconferencing cameras

Company	Contact	Product	Price
City Software	1300 658 600	Logitech QuickCam Pro	$279
Ecom Computers	(02) 9299 0022	Logitech QuickCam Home (OEM)	$199
Forte Computers	1300 368 922	Logitech QuickCam Home	$250 (approx)
Harris Technology	(02)99259925	Phillips PCA645VC	$249
	http://ht.com.au/	Kodak DVC323	$285
International Software Warehouse	1300 300 003	Logitech QuickCam Home	$249
	http://www.software-warehouse.com.au/	Compro PS39	$299
Mail Order Software Australia	(03) 9633 9111	Kodak DVC323	$279
Performance Memory & Peripherals	(02) 9906 4533	Intel Create & Share USB Pack	$414



OUR BX MOTHERBOARDS ARE STATE-OF-THE-ART.

By using only the finest material, AOpen has created three motherboards considered not simply state-of-the-art, but works-of-art.

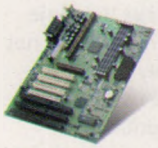
The multi-awarded AX6B features 4 memory slots, 4PCI, 3ISA and 1AGP slots, while the AX6BC (Type R) features 5PCI, 2ISA and 1AGP and supports 16 sets of Clock Frequencies. The AX6B Plus adds Ultra-wide 7880 SCSI on board.

"...the best BX board on test."
PC @uthority – Motherboard test feature June '98

"...it's a dream board for performance enthusiasts."
Editors Choice – apc mag – BX Motherboard test July '98

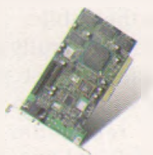
Of course, our motherboards exhibit their best performance and capabilities with AOpen's component collection of cases, graphic cards, sound cards, CD-ROMs and DVD-ROMs.

For further information, please visit our web site at: www.servex.com.au, email to ddeng@acer.com.au or contact our distributors listed below:


Mainboards


CD & DVD Roms


Sound cards


Graphics cards


Cases

AOpen®
Component Solutions

servex service for excellence

NSW: Best Byte (02) 9436 0788 • Advanced Computers (02) 9692 9988 QLD: Compuworld (07) 3846 7588 • Intermedia (07) 3369 0477 VIC: Best Byte (03) 9561 8777 • Canda (03) 9574 9760 SA: Crest (08) 8299 0088 WA: Direct Memory Access (08) 9443 9322. Servex Australia Pty Ltd ACN 076 483 808. AOpen is a registered trademark of AOpen Inc. All other product, brand and company names are trademarks of their respective owners.

Serv/5947

Would you buy a computer from a vendor which had a stack of complaints against it? **By Roulla Yiacoumi**

Take the money and . . .

Would you buy a PC from a shop if you knew that vendor had 100 complaints lodged against it? What if that number was just 50? Truth is, not many of us would.

When buying a PC, potential buyers are strongly urged to take precautions before spending. But how do you avoid problems when no-one will tell you if the store you want to buy from is not everything it seems to be?

Service & Reliability often receives correspondence from readers who have tried to do the right thing and do a bit of research prior to making a purchase. "I called Fair Trading, but they won't tell me anything" is a common refrain.

The problem with consumer affairs and fair trading departments is that their interests don't always appear to be with the consumer at all. If you're going to spend $2,500 buying a machine from a shop, aren't you entitled to know if that vendor has 150 complaints against it regarding the non-supply of goods? Of course! So why is it that a fair trading department cannot give you this information?

Fair Trading (the new name for some consumer affairs departments) is interested in just that: fair trading. If a vendor has had a number of complaints registered with the department, that information becomes confidential. Why? Because the department cannot be seen to be interfering with fair trade. By telling members of the public about any complaints, the department may be seen to affect that vendor's capacity to trade fairly — as any sensible consumer would more than likely take their business elsewhere. The other problem is that naming a business could be defamatory if the complaint is not proven.

Most vendors will have at least some complaints against them. You'll find that the number of complaints is usually relative to the size of the business. The bigger the store, the more likely that it has a greater number of complaints notched up. What you should be worried about is relatively new retailers clocking up hundreds of complaints in a short time.

Fair trading departments will issue notices warning consumers about dealing with such places if the number of complaints reaches abnormal proportions. Unfortunately, by the time these warnings are published, several hundred consumers will have already been affected.

In October 1998, the NSW Fair Trading Advisory Council released its lengthy report, *Inquiry into the Retail Supply of Personal Computers, Peripheral Devices and Software*. It found that 57% of retailers which sold "problem computers" were no longer trading, including Empire Systems, Fairstar, Forem-Freeway and ShopSure. Over 30% of those who responded to the survey never received goods they paid for.

In the last 18 months, the NSW Department of Fair Trading has 'named' six high-profile computer shops, the most recent being Perry Tait's and CNN Promotions. Naming a vendor is a complex procedure and is considered very serious, as the vendor is sure to lose business as a result of the extensive media coverage. It only happens in very extreme cases.

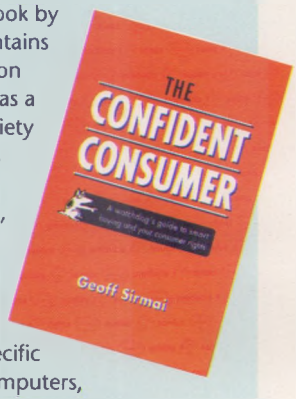
Looking at this table, you can see that the number of complaints against a store can sometimes get ridiculously high before the department will officially warn the public.

VENDOR	COMPLAINTS
Perry Tait's	560
ShopSure	450
Forem-Freeway	300+
Fairstar	220
Empire Systems	200+

Think laterally and do some research. A basic Internet search and newsgroup trawl will turn up some amazing results. And remember the fundamental principle of buying a PC: if the deal of a lifetime seems too good to be true, then it probably is.

Have you been caught out by a vendor which went out of business? Let me know, at ry@acp.com.au.

The Confident Consumer



What a great resource! This excellent book by Geoff Sirmai contains all the information you could want as a consumer. A variety of topics such as warranties, shopping tactics, refunds, faulty repairs, labelling, and bag searches are covered. Specific areas such as computers, mobile phones, real estate agents, dry-cleaning and even funerals are discussed, with a bunch of real case studies thrown in for effect.

There are heaps of things in here that will have you saying "I didn't know that!"

Did you know that:

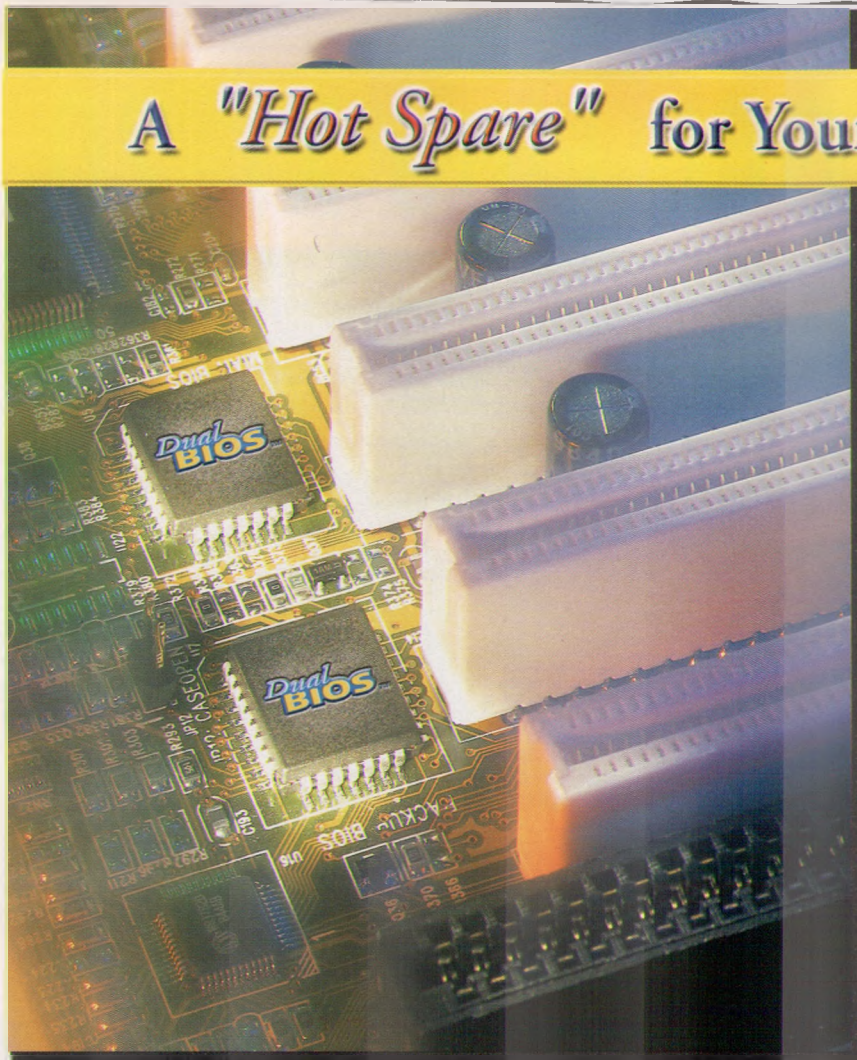
- 'Warranty void if sticker removed' and other such notices that exclude statutory rights of consumers are illegal.
- Faulty products do not have to be returned in their original packaging.
- If you have a faulty item which is covered by a warranty, it is the date that you report the fault that matters. If the warranty runs out while your goods are being shuffled between a retailer and manufacturer, you do not lose out.
- If a product with a 12-month warranty breaks down after 10 months, the replacement product has the same original warranty (12 months) — not the remainder warranty from the original purchase date (which in this case would be two months).

Every consumer should be armed with the information in this book.

***The Confident Consumer* is published by Allen & Unwin and is available from major bookshops for $19.95.**

GIGABYTE
TECHNOLOGY

A "Hot Spare" for Your BIOS



GIGABYTE Technology is pleased to introduce "DualBIOS™", a "hot spare" for your system BIOS. This newest "value-added" feature, in a long series of innovations from GIGABYTE, is available on GA-BX2000, GA-6GXU and GA-6GXDW motherboards. Future GIGABYTE server and workstation motherboards will also include this innovation.

What is "DualBIOS™" ?

On GIGABYTE motherboards with "DualBIOS" there are physically two BIOS chips. For simplicity we'll call one "Primary" BIOS and the other we'll call it your "Secondary" BIOS (your "Hot Spare"). If your "Primary" BIOS failed, the "Secondary" BIOS almost automatically takes over on your next system boot. Almost automatically and with virtually zero down time! Whether the problem is a failure in flashing your BIOS or a virus or a catastrophic failure of the primary BIOS chip, the result is the same - the second BIOS backs you up, almost automatically.

Dual BIOS™

Intel® Pentium® II / III

GA-BX2000 Intel® 440BX AGPset

Dual BIOS



- Supports Intel® Pentium® II / III and Celeron™ Processors
- Slot 1 with AGP slot
- Supports 66/75*/83*/100/112*/124*/133* MHz System Bus
- Clock multiplier 3.0/3.5 /6.5
- 4 DIMMs up to 1GB DRAM
- Suspend-To-RAM (STR)
- Includes DualBIOS™ technology
- Power-on by K/B, PS/2 Mouse, LAN & Modem
- 3 Fan Power & Speed Detection Connectors
- Intel® LDCM™ Utility
- TREND MICRO PC-cillin 98 Anti-Virus utility (scan only)

STR Suspend to RAM

Intel® Pentium® II / III Xeon™

GA-6GXU Intel® 440GX AGPset

Slot 2



- Supports Intel® Pentium® II / III Xeon™ Processors
- Slot 2 with AGP slot
- Supports 100/112*/124*/133* MHz System Bus
- Adaptec 7890 Ultra 2 SCSI
- 4 DIMMs up to 2GB DRAM
- Includes DualBIOS™ technology
- Power-on by K/B, PS/2 Mouse, LAN & Modem
- 3 Fan Power & Speed Detection Connectors
- Intel® LDCM™ Utility
- TREND MICRO PC-cillin 98 Anti-Virus utility (scan only)

Turbo Charged Graphics Accelerator

GA-630 3Dfx Voodoo Banshee™

POST POWER ON SELF TEST RECOMMENDED

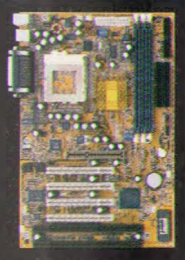


- 128-bit 3D/2D Graphics Engine - Voodoo Banshee from 3Dfx
- 8/16MB 125MHz SGRAM for ultra high resolution
- 250MHz RAMDAC for razor-sharp graphics
- Optimized driver for Direct3D, Glide, and OpenGL under Windows 95/98
- Optimized driver for Glide and OpenGL under Windows NT4.0
- Ziff-Davis 3DWinMark up to [illegible] PII 400MHz)

3Dfx

GA-6BX7 Intel® 440BX AGPset

Socket 370



- Supports Intel® PPGA Celeron™ Processor
- Socket 370 with AGP slot
- Supports 66/75*/83*/100/112*/133* MHz System Bus
- Clock multiplier 4.5/5.0/5.5/6.0/6.5
- 3 DIMMs up to 768MB DRAM
- Power-on by K/B, PS/2 Mouse, LAN & Modem
- 3 Fan Power & Speed Detection Connectors
- Intel® LDCM™ Utility
- TREND MICRO PC-cillin 98 Anti-Virus utility (scan only)

* These speed settings are not guaranteed by GIGABYTE

All trademarks and logos are the properties of their respective holders

Upgrade Your Life

GIGABYTE

GIGA-BYTE TECHNOLOGY CO., LTD.
5F, No.9, Alley 6, Lane 45, Pao Shin Road,
Hsin-Tien, Taipei Hsien, Taiwan, R.O.C.
Tel : 886-2-29184839
Fax : 886-2-29184842 29158867
http: //www.gigabyte.com.tw

TAIWAN WINNER SYMBOL OF EXCELLENCE
GA-686BX Series

TREND MICRO

NSTL Year 2000 Compliant

ISO 9001

ISO 14001 ALL PRODUCTS MADE BY CERTIFIED FACTORY

CeBIT 99 HANNOVER 18.—24.03.1999
Hall13, Stand A35

WIN a GCC Elite XL 20

Subscribe to APC today and you could win an incredible GCC Elite XL 20/1200 network laser printer. The Elite XL 20/1200 prints almost typesetting quality at true 1200 X 1200 dpi and delivers blistering performance with its standard 64MB of RAM and 50MHz RISC processor.

And it doesn't end there. The combination of high performance, outstanding print quality and cross platform capabilities is fast making GCC the printer of choice right across Europe and the USA.

At 20 pages per minute, it can turn out huge poster-sized (320mm X 892mm) graphics and print-shop quality text. And patented AccuGray(tm) technology reproduces halftones with incredible clarity.

And should you ever have a problem that can't be solved over the phone with GCC's free technical support, GCC PLATINUM EXCHANGE guarantees a replacement printer sent to you the very next day!

Platinum EXCHANGE



GCC TECHNOLOGIES
THEY'RE BIGGER. WE'RE HUNGRIER

Toll Free 1800 422 832

SPECIFICATIONS OF THE GCC ELITE XL 20/1200 PRINTER INCLUDE:

- Elite XL 20/1200 $4,892
- 1200 X 1200 dpi resolution
- 50 MHz Ultra fast processor
- 64 MB RAM
- 20 pages per minute
- Min A4 / A3 + Size
- Giant Poster Prints - Max Print Area 320mm X 892mm
- Full Bleed, edge to edge printing
- FREE 1 year Platinum Exchange Warranty
- Ledger, letter, Legal, A3, A4, Envelope
- 500 Sheet Universal Tray
- Optional 2nd or 3rd Paper Feeder
- PostScript Level 2, PCL 5
- 285 PostScript fonts, 15 PCL fonts, EtherTalk,
- TCP/IP, Ethernet (10Base T, AAUI), Netware,
- Bi-directional Parallel, Local Talk, RS422

Get more out

The Unbeatable (G6-366C SE)

Intel® Celeron™ Processor 366MHz
128Kb Level 2 Cache
32MB SDRAM
EV500 15" Monitor
8MB AGP Graphics Accelerator
4.3GB Ultra ATA Hard Drive
13x Min/32x Max CD ROM Drive
Sound Blaster™ Audio PCI™ 64D
GCS-100 Stereo Speakers
Mini Tower Case
56K Data/Fax Modem
MS® Windows® 98
Gateway 3 Year Desktop Warranty**
Lifetime Technical Support
A: Gateway Education Bundle, OR
B: Gateway Reference Bundle

$1,799 inc tax

Above System with Your:)Ware Trade In + Unlimited Net Access $22/wk

The Irrisistable (G6-400C)

Intel® Celeron™ Processor 400MHz
128Kb Level 2 Cache
64MB SDRAM
EV500 15" Monitor
8MB AGP Graphics Accelerator
8.4GB Ultra ATA Hard Drive
13x Min/32x Max CD ROM Drive
Sound Blaster™ Audio PCI™ 64D
GCS-100 Stereo Speakers
Mini Tower Case
56K Data/Fax Modem
MS® Windows® 98
Gateway 3 Year Desktop Warranty**
Lifetime Technical Support

$1,999 inc tax

Above System with Your:)Ware Trade in + Unlimited Net Access $23/wk

The Charmer (G6-400)

Intel® Pentium® II Processor 400MHz
512Kb Level 2 Cache
64MB SDRAM
EV700 17" Monitor
8MB AGP Graphics Accelerator
12.9GB Ultra ATA Hard Drive
DVD III ROM Drive
Sound Blaster™ Audio PCI™ 64D
Boston Acoustics BA635s Speakers
Mid Tower Case
56K Data/Fax Modem
MS® Windows® 98
Gateway 3 Year Desktop Warranty**
Lifetime Technical Support

$2,899 inc tax

Above System with Your:)Ware Trade in + Unlimited Net Access $33/wk

The Enforcer (G7-450)

Intel® Pentium® III Processor 450MHz
512Kb Level 2 Cache
64MB SDRAM
EV700 17" Monitor
16MB STB nVidia TNT AGP
Graphics Accelerator
12.9GB Ultra ATA Hard Drive
DVD III ROM Drive
Sound Blaster™ Audio PCI™ 64D
Boston Acoustics BA635s Speakers
Mid Tower Case
56K Data/Fax Modem
MS® Windows® 98
Gateway 3 Year Desktop Warranty**
Lifetime Technical Support

NEW $3,399 inc tax

Above System with Your:)Ware Trade in + Unlimited Net Access $37/wk

The Super Sonic (G7-500)

Intel® Pentium® III Processor 500MHz
512Kb Level 2 Cache
128MB SDRAM
EV700 17" Monitor
16MB STB nVidia TNT AGP
Graphics Accelerator
12.9GB Ultra ATA Hard Drive
DVD III ROM Drive
Sound Blaster™ Audio PCI™ 64D
Boston Acoustics BA635s Speakers
Mid Tower Case
56K Data/Fax Modem
MS® Windows® 98
Gateway 3 Year Desktop Warranty**
Lifetime Technical Support

NEW $3,999 inc tax

Above System with Your:)Ware Trade in + Unlimited Net Access $41/wk

The Hummer (G7-500XL)

Intel® Pentium® III Processor 500MHz
512Kb Level 2 Cache
128MB SDRAM
VX900 19" Monitor
16MB STB nVidia TNT AGP
Graphics Accelerator
22GB Ultra ATA Hard Drive
DVD III ROM Drive
Sound Blaster™ Audio PCI™ 64D
Boston Acoustics Digital Media Theatre Speakers
Philips Recordable/ReWriteable CD-ROM
Full Tower Case
56K Data/Fax Modem
MS® Windows® 98
Gateway 3 Year Desktop Warranty**
Lifetime Technical Support

NEW $5,599 inc tax

Above System with Your:)Ware Trade in + Unlimited Net Access $54/wk

Gateway™

Get more out of the box

Call, click or come on in

1800 500 734

www.gw2k.com.au

· 225 Clarence St, Sydney · 398 Lonsdale St, Melbourne · 47-79 Elizabeth St, Brisbane · 938 Hay St, Perth · And now at the Telstra Shop, Pirie Street, Adelaide, Sunshine Plaza Maroochydore, Westfield Miranda, Liverpool, Strathpine, Casuarina, Northland, Indooroopilly, Marion

intel inside™
pentium® III



More grunt.

More Muscle,
More Brains,
More Ram,
More Graphics,
More Sound,
More Gigs,
More Mail,
More Brawn,
More Speed,
More Than One Program Running At A Time,
More Control,
More Tools,
More For Your Money,
More Than You'll Ever Need.



It's still to early to tell whether Gigabit Ethernet will dominate networking.

Leap of faith?

Since networking vendors began developing Gigabit Ethernet products in 1996, the industry has been abuzz with speculators trying to answer the big question, will it be ATM (asynchronous transfer mode) or Gigabit Ethernet that eventually dominates corporate networks? While ATM is now increasingly appearing in Australian networks, the ratification of a Gigabit Ethernet standard in June has seen several companies adopt the technology and many others giving Gigabit Ethernet consideration when formulating networking strategies.

Although it provides blistering transfer speeds of up to 1,000Mbps, Gigabit Ethernet's infrastructure requirements throw a good-size spanner into the plans of companies that believe vendors' marketing rhetoric that the technology is easy to install. While it shares the CDMA/CD collision detection and variable-length packets of Ethernet and Fast Ethernet, Gigabit Ethernet is actually an amalgam combining Ethernet's data structure with the physical transport layer of Fibre Channel (a high-speed, fibre-based server interconnect protocol).

The unique design of Gigabit Ethernet, and the inevitable signal attenuation that its high speeds cause on copper cabling, limit its deployment — even over Category 5 cabling — to short run lengths that are only adequate to link servers in the same room. Single-mode fibre is for all intents and purposes mandatory for Gigabit Ethernet, meaning that companies without a significant fibre infrastructure may find ATM provides a better short-term solution, as speeds of 155Mbps can be achieved running ATM over copper. Even in larger companies and government departments with fibre backbones, however, IT managers are hedging their bets by retaining upgrade paths in either direction.

Broadcasting company SBS, for one, has used Xylan's recently released OmniSwitch Router to implement a Gigabit Ethernet network supporting nearly 800 devices in Sydney, Melbourne and Canberra. After running the Gigabit switches in conjunction with a separate Fast Ethernet network, the company will completely switch over to Gigabit, but it is keeping ATM in mind for future multimedia applications.

"We've got plenty of fibre, and when it was time to change from our 10Mbps network, it made no sense to be looking at 100Mbps Fast Ethernet with Gigabit Ethernet now available," said Charles Shave, deputy manager of computing and network systems at SBS.

"Gigabit also made more sense in a data network than ATM, which is just a very complex way of getting data from one side of the network to the other. However, in audio and video production, it's more likely that people will produce true ATM software [written specifically to take advantage of ATM's quality of service technology], and there's a perception that we'll need to use ATM for that later on."

IT managers are hedging their bets by retaining upgrade paths in either direction.

Although the large volumes of Ethernet and Fast Ethernet already sold have pushed them to commodity price levels, Gigabit Ethernet's relative youth means it is still more expensive than ATM solutions. On the other hand, the fact that ATM is completely different from the Ethernet family means that ATM implementations not only require the capital cost of equipment investment, but also the acquisition of skilled engineers to implement and maintain them.

Recognising that both technologies have their drawbacks, many companies are shying away from switches that only support one or the other. Modular switches, which allow companies to swap topologies by simply changing interface cards, were a key requirement when the Commonwealth Department of Agriculture, Fisheries and Forestry (DAFF) in Canberra was planning for its recent network upgrade.

DAFF decided 100Mbps Fast Ethernet would be an adequate stopgap until Gigabit Ethernet or ATM became necessary. Although the department has run a Gigabit Ethernet switch in its National Residue Survey supercomputing centre for nearly a year, communications manager Brad Eyre said Fast Ethernet was more than enough for its 4,000-node network at this point. For future flexibility, however, DAFF chose modular switches (Cisco's Catalyst 3500s) because they support both ATM and Gigabit Ethernet.

"Similar to 100Mbps Ethernet, Gigabit Ethernet is quite easy to install," said Eyre. "ATM is quite complex, particularly if you have 36 switches as we do. Gigabit was more expensive than ATM and we didn't believe [155Mbps] ATM gave us a lot of advantages over 100Mbps Ethernet. However, if you've got huge traffic problems, you'd have to carefully look at Gigabit Ethernet over ATM. In a LAN environment where you're only pumping data, Gigabit Ethernet is fine. We wanted a chassis that could provide us with a migration path to both technologies."

Gigabit Ethernet also faces some practical obstacles, including the fact that few of today's servers are capable of handling even one-third of a gigabit of traffic. Since similar results can be obtained by using 155Mbps ATM connections and a 622Mbps ATM backbone, many companies may find that high-cost Gigabit is still less than compelling.

A recent Gartner Group analysis predicted that Gigabit Ethernet will come into its own around 2000, and that revenue from Gigabit LANs will surpass ATM LANs in 2001.

For now, companies shouldn't sweat over Gigabit, said David Keane, Australia/New Zealand managing director of switching vendor Xylan. "[Gigabit Ethernet is] just the merging together of existing technologies into a new one that makes sense. I can see the market going to Gigabit Ethernet for traditional LAN applications in the next year, but let's not give it more importance than that. It's good to have, but it doesn't solve customer problems [such as quality of service and user administration]."

David Braue

of
the box

The Protégé (Solo 2500LS)

13.3" Active Matrix Display (TFT)
Intel® Celeron™ Processor 300MHz
32MB SDRAM
128k Level 2 Cache
2MB SDRAM Graphics Accelerator
4GB Ultra ATA Hard Drive
Integrated 1.44MB Floppy Disk Drive
Integrated 8xMin / 20xMax CD ROM
16-bit Stereo, internal speakers, headphones, ext.l volume
56k Data/Fax/Modem
2 Type II or 1 Type III PCMCIA slots
12-cell Lithium Ion battery & AC Adapter
Casual Case
MS® Windows® 98
291 x 233 x 47mm - 3kg
3 year parts & labour
Lifetime Technical Support

$3,999 Inc Tax

Above System with Your:)Ware
Trade in + Unlimited Net Access $36/wk

The FireAnt (Solo 3100SE)

12.1" Active Matrix Display (TFT)
Intel® Celeron™ Processor 266MHz
32MB SDRAM
128k Level 2 Cache
2.5MB 256-bit SGRAM Graphics Accelerator
3GB Ultra ATA Hard Drive
External 1.44MB Floppy Disk Drive
Integrated 8xMin / 20xMax CD ROM
16-bit Stereo, internal speakers, headphones, ext. volume
56k Data/Fax/Modem
1 Type II PCMCIA slots
8-cell Lithium Ion battery & AC Adapter
Leather Portfolio Case
MS® Windows® 98
285 x 215 x 31mm - 2.2kg
3 year parts & labour
Lifetime Technical Support

$3,499 Inc Tax

Above System with Your:)Ware
Trade in + Unlimited Net Access $33/wk

The Stinger (Solo 3100LS)

12.1" Active Matrix Display (TFT)
Intel® Celeron™ Processor 300MHz
64MB SDRAM
128k Level 2 Cache
2.5MB 256-bit SGRAM Graphics Accelerator
4GB Ultra ATA Hard Drive
External 1.44MB Floppy Disk Driv
Integrated 8xMin / 20xMax CD ROM
16-bit Stereo, internal speakers, headphones, ext. volume
56k Data/Fax/Modem
1 Type II PCMCIA slots
8-cell Lithium Ion battery & AC Adapter
Leather Portfolio Case
MS® Windows® 98
285 x 215 x 31mm - 2.2kg
3 year parts & labour
Lifetime Technical Support

$3,899 Inc Tax

Above System with Your:)Ware
Trade in + Unlimited Net Access $35/wk

The Stealth (Solo 5150LS)

14.1" Active Matrix Display (TFT)
Intel® Pentium® II Processor 300PE MHz
64MB SDRAM
256k Level 2 Cache
2.5MB 256-bit SGRAM Graphics Accelerator
4GB Ultra ATA Hard Drive
Modular 1.44MB Floppy Disk Driv
Modular 8xMin / 20xMax CD ROM
16-bit Stereo, internal speakers, headphones, ext. volume
56k Data/Fax/Modem
2 Type II or 1 Type III PCMCIA slots
9-cell Lithium Ion battery & AC Adapter
Casual Case
MS® Windows® 98
315 x 246 x 40mm - 2.9kg
3 year parts & labour
Lifetime Technical Support

$4,799 Inc Tax

Above System with Your:)Ware
Trade in + Unlimited Net Access $47/wk

The Dynamo (Solo 9100LS)

14.1" Active Matrix Display (TFT)
Intel® Pentium® II Processor 300PE MHz
64MB SDRAM
256k Level 2 Cache
4MB SGRAM Graphics Accelerator
4GB Ultra ATA Hard Drive
Combination DVD/FDD
16-bit Stereo, internal speakers, headphones, ext. volume
56k Data/Fax/Modem
2 Type II or 1 Type III PCMCIA slots
12-cell Lithium Ion battery & AC Adapter
Casual Case
MS® Windows® 98
313 x 243 x 56mm - 3.67kg
3 year parts & labour
Lifetime Technical Support

$4,999 Inc Tax

Above System with Your:)Ware
Trade in + Unlimited Net Access $49/wk

The Wizard (Solo 9100XL)

14.1" Active Matrix Display (TFT)
Intel® Pentium® II Processor 366 MHz
128MB SDRAM
256k Level 2 Cache
4MB SGRAM Graphics Accelerator
10GB Ultra ATA Hard Drive
Combination DVD/LS120
16-bit Stereo, internal speakers, headphones, ext. volume
56k Data/Fax/Modem
2 Type II or 1 Type III PCMCIA slots
12-cell Lithium Ion battery & AC Adapter
Executive Leather Case
MS® Windows® 98
313 x 243 x 56mm - 3.67kg
3 year parts & labour
Lifetime Technical Support

$6,999 Inc Tax

Above System with Your:)Ware
Trade in + Unlimited Net Access $64/wk

Gateway™

Get more out of the box

Call, click or come on in

1800 500 734

w w w . g w 2 k . c o m . a u

· 225 Clarence St, Sydney · 398 Lonsdale St, Melbourne · 47-79 Elizabeth St, Brisbane · 938 Hay St, Perth
· And now at the Telstra Shop, Pirie Street, Adelaide, Sunshine Plaza Maroochydore, Westfield Miranda, Liverpool, Strathpine, Casuarina, Northland, Indooroopilly, Marion

intel inside
pentium® II

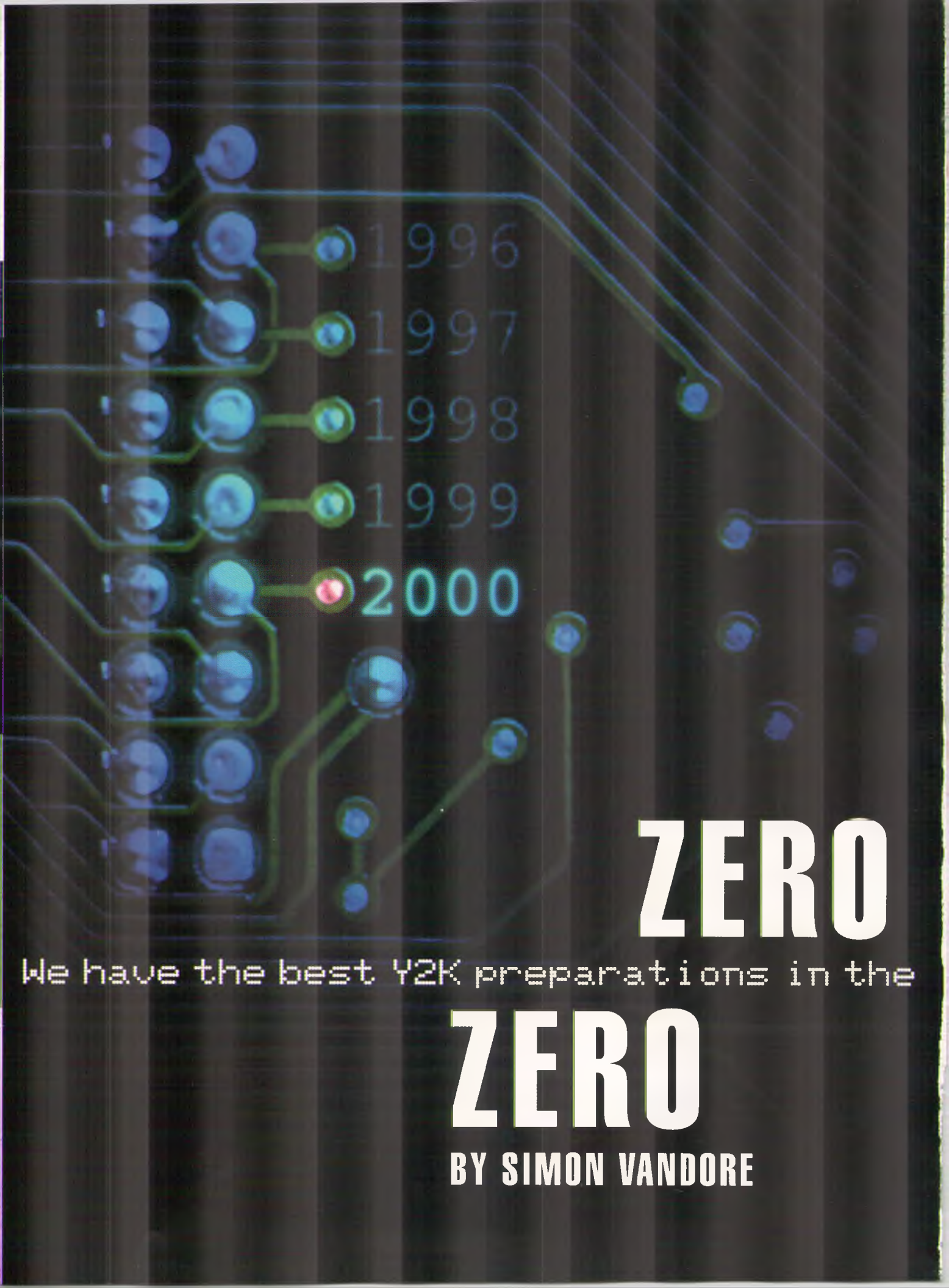




More mobility.

More Freedom,
More Flexibility,
More Agility,
More Range,
More Mileage,
More Memory,
More Graphics,
More Power,
More Vibes,
More Time,
More Al Fresco,
More Of The World Moving Under Your Feet,
More For Your Money,
More Movies,
More Than
You Ever Thought You'd Get.

©1998 Gateway 2000, Inc. All rights reserved. Gateway and the stylised logo are trademarks of Gateway 2000, Inc. Prices include tax but exclude freight, handling and insurance. The Intel Inside logo and Pentium are registered trademarks and Celeron is a trademark of Intel Corporation. All brands and product names are trademarks of their respective companies. Product shots for illustrative purposes only. Subject to Gateway 2000 warranty, terms and conditions. Payments assume computer purchase (but not Internet access) is 100% financed through an independent lender. Finance available to approved applicants only. *Payments based on 48 month term at an annual percentage rate of 24.9%. Prices and configurations may change without notice or obligation. Weekly payments are determined based on an average of 4.3 weeks per month. Fees & charges apply. Trade in available at any time between the first day of the 24th month & the last day of the 49th month after delivery of Your:)Ware product. Trade in credit is only available if you purchase a new Gateway product. Gateway will give you the reasonable market value on the Your:)Ware product, based on its condition at the time of trade in, as determined in Gateway's sole discretion using commercially reasonable industry standards determined by Gateway. Other terms & conditions may apply. Gatewaynet pricing based on 6 month sign on commitment and approved credit card. One month early cancellation fee. Subject to gatewaynet Services Terms & Conditions. Not available in all areas. McCANN GATE0110/APC



ZERO

We have the best Y2K preparations in the

ZERO

BY SIMON VANDORE

Analysts agree that Australia is well ahead of the pack in tackling potential computer problems centred on 2000. But being in front is not necessarily something to crow about — there's still a long way to go before anyone can dare to smile. None of the numbers are anywhere near 100% yet, and even those whose repairs are 'complete' won't give any guarantees. And then there are the external factors . . .

In reality, many countries are just starting their Y2K efforts and may not be ready until 2001, let alone the end of this year. It's said that even some First World nations are so far behind that they have already decided to sit tight and see what happens. Considering the fun could begin even earlier than September, when the date 9/9/99 will be seen by a considerable number of programs as an 'end of file' marker or termination instruction, economic effects may be inevitable.

Y2K is real. Problems with the date change occur with varying frequency in everything that uses microchips. Calculations involving dates where the year is represented by two digits do not work when the century changes, and this century we have become accustomed to using two-digit years everywhere — in handwriting, on calendars and in the computer industry. Windows 98? Didn't they mean 1998?

The question is whether Y2K is going to hurt us a little or a lot. Each individual and organisation has to decide whether, and how much, to believe the naysayers and doomsayers, and then react accordingly. If a significant number of computers and applications lose their ability to measure time or crash due to invalid data, does it really matter? There will be plenty that continue to function normally. There will be plenty of people with workarounds. Computers have only really been important for 20 years — surely our dependence isn't so extensive that we can't do business or run our lives without them?

Perhaps the answer is that we're not dependent, but have simply, perhaps carelessly, placed too much trust in technology's enabling power, allowing many of the alternatives to rot. We all trust technology to varying extents. We trust it to keep us alive in hospitals, prevent traffic accidents, and design other items on which we rely. We also use it to buy, sell, organise and distribute everything bankable, wearable, edible, editable and generally obtainable. Temporarily losing parts of that infrastructure could force a major rethink, but not before it creates havoc. At worst this havoc, or even just the thought of it, might interrupt supply and even cause social unrest, but surely not in Australia?

The feds

Even the Federal Government's year2k Industry Program, responsible for alerting and advising Australian business about Y2K, refuses to take comfort in the local percentages. Its CEO, Graeme Inchley, determinedly avoids resting on his laurels.

"The question I ask is, 'Is this the sort of thing that you really want the rest of the world to put the benchmark on?' So I think we've got to be very careful — congratulating ourselves on being the leader is probably not the way to do this. As I often say, you can just as easily drown in 10cm of water if your nose is under it, as you can in 3m of water," Inchley observed.

"My opinion is that it will certainly emerge as a 1999 problem, because if you think it's all going to emerge on 1/1/2000 then you're kidding yourselves. The number of event horizons that will emerge during 1999 will just increase as we go through the year — travel bookings into the year 2000, the financial year starting on 1st July. The 90, 60, 30-day forecasting systems that one might have as you get closer to the year 2000. All of these things — insurance renewals, for example, any other renewal, a licence renewal that's being done on an annual basis — if it's going to pick up a year 2000 problem, it's more likely to do it then than in the year 2000.

"There may even be backward referencing in the year 2000 and beyond, so then you've got systems that having looked forward into the year 2000 and learnt to cope with that, now that we're in the year 2000 we have to back-reference into the 1900s for birthdates or whatever. Who knows?"

Senator Ian Campbell's lengthy title is 'Parliamentary Secretary to the Minister for Communications, Information Technology and the Arts, Senator Richard Alston'. But Alston has given him full-time responsibility for handling everything connected with Y2K, a task which will clearly put him in the spotlight towards the end of this year. Only a few months into his role, Campbell is already fluent in the language of Y2K and has obviously done his homework.

"I've seen my job in the first three or four months as being able to get as good a feel as possible for the preparations that are being made across Australia at all levels, and I think I'm coming to the end of that process," said Campbell.

"I'm looking at making sure we get government coordination at the best level and the Industry Program and the communications strategy are all on track. We're making assessments of the international situation at the moment . . .

world. Congratulations. Let's panic.

"The bits that concern me are, I guess, the small-to-medium enterprise sector broadly. I don't want to pick on them, but I'd take every opportunity to ask them to if they haven't done something about it, then don't delay it till tomorrow.

"All of us like to put things off until tomorrow if we can, but [Y2K is] something that should not be seen as some bizarre, Nostradamus type thing — it should be seen as a business continuity issue. It should be seen as something like the Asian crisis, or it should be seen as if you've got a major new competitor coming in. How do you react to it?"

Industrial disease

Small-to-medium enterprises (SMEs) are indeed the most worrisome sector for Australia. Such companies are said to contribute $125 billion to Australia's gross domestic product (GDP) and employ around 3.6 million people.



Above: Chairperson of the year2k Industry Program, Maurice Newman, pushed for 'good Samaritan' legislation in Australia.

At the start of last year, statistics from the Australian Bankers' Association (ABA) showed only 20% of small organisations took Y2K seriously. Fortunately by December, preliminary data from a survey of 6,500 businesses by the Australian Bureau of Statistics (ABS) showed a 100% increase for small business and a 70% increase in activity among medium-size firms. Awareness was very high (90%), but the statistics referred to action, not completion, and just 60% of all companies expressed an intention to act. Most of those with no intention had fewer than five employees.

Inchley said smaller companies — "by that I mean three, four, five people in a company, up to a dozen" — were still within target range if they acted on Y2K in the first half of 1999.

"In those cases it may be that a software upgrade is an answer. It might take a week or so, or not even that. It might be that they have to do a bit more, or that they don't have to do anything. But they need to take that action."

Meanwhile, the importance of revealing information about readiness cannot be underestimated. The ABA has warned that as 2000 approaches, SMEs which have not addressed millennium bug issues may be seen as poor credit risks.

Smaller companies are still within target range if they act on Y2K in the first half of 1999.

Last year, the Australian Stock Exchange (ASX) required its member companies to report their Y2K readiness by June 30 at the latest, and it will do so again this year. It's no coincidence that the chairperson of the year2k Industry Program, Maurice Newman, also chairs the ASX.

Newman pushed for the recent passage of 'good Samaritan' legislation through Federal Parliament, to limit the liability of those responsible for disclosure of corporate Y2K information from prosecution for their statements, while prohibiting anti-competitive action arising from Y2K statements. The legislation, dubbed 'The Year 2000 Information Disclosure Bill 1999', was passed by the Senate on February 18 and only excludes statements which are demonstrably misleading or made as part of legal proceedings. It does not protect companies against the failure of a product or service due to Y2K-related factors, but this was never its intention.

"We need the major infrastructure suppliers — telecommunications, electricity, water, transport, banking — by the middle of this year, anyway, to be very clear about what their status is and what they forecast in terms of business continuity . . . They've got to be absolutely honest, and by then they've got to have some feel for the potential. And then we base our recommendations on that potential," explained Inchley.

Deloitte Touche Tohmatsu analysed Y2K reportage from the ASX's top 150 companies last financial year. Its analysis showed that 29% expected to be compliant by the end of 1998, but 10% thought it would take until the last half of 1999. Some believe that the mere fact that 15 very large companies are placing themselves at such a risk presents a threat to the national economy. For example, in May, a survey among members of the Australian Retailers Association showed that 80% regarded Y2K as serious and a full 14% had already run into problems.

But even last December, ABS data showed 10% of businesses with 200 or more employees were yet to start work on Y2K.

Philip Dodd, marketing director of the year 2000 program for Unisys Australia and Asia, said, "Organisations that started two or three years ago said to me then, 'If you haven't started you're not going to finish'. Then! Two or three years ago. And these were big organisations, multibillion-dollar organisations, the big banks mainly. And they did start early, and that's great. They are part of the infrastructure that supports all of us. But if an organisation of that size has not started, then they'll never finish — the good news is that there are very few of those around the world, and they're not in this country."

A comparision of the states showed the ACT had the most Y2K activity, while Tasmania had the least. Some specific industry sectors and states, such as the Victorian retail industry, appeared to be doing far less than their counterparts in other states.

"I don't know why," admitted Inchley. "I don't think it's anything to do with the Victorian program. Maybe it's that Victorian retailers are an especially conservative bunch . . . But we need to understand why that's the case."

Sorting the ABS results by industry sector showed mixed results. There was strong activity in the wholesale and finance sectors, and slightly less activity in the construction and hospitality industries, for example. Preliminary results from private utilities (water, electricity, gas and so on) showed 86% were taking action. The other 14% were regarded as not dependent on IT. However, at press time no statistics had been released for public utilities.

Individual state governments' preparedness varies, but the Federal Government has been releasing reports on its Y2K status for about a year and a half. Until recently the reports referred to broad sectors of government activity, but the most recent one



Introducing the new COLOURPAGE 8c from OKI - an evolution in colour printing.

At eight full colour pages per minute, OKI's COLOURPAGE 8c can give your business the sophistication of laser-quality colour documents at the speed of a natural predator. With perfect blacks and stunning colour output to 600 dpi, everyone on the LAN can share the benefits of the COLOURPAGE 8c.

And the COLOURPAGE 8c is not only affordable to purchase, it's also cost-effective to own. OKI's LED technology means fewer moving parts, so there's much less chance of mechanical failure; in fact, product life is considerably longer than laser printers. In addition, this robust and reliable machine comes with an extendable one year warranty to give you total peace of mind.

So, if your business needs a combination of sophisticated colour and predatory speed for a price that won't devour your budget, look no further than the COLOURPAGE 8c from OKI. For your nearest supplier, call us now on 1800 800 140 or visit us at www.oki.com.au

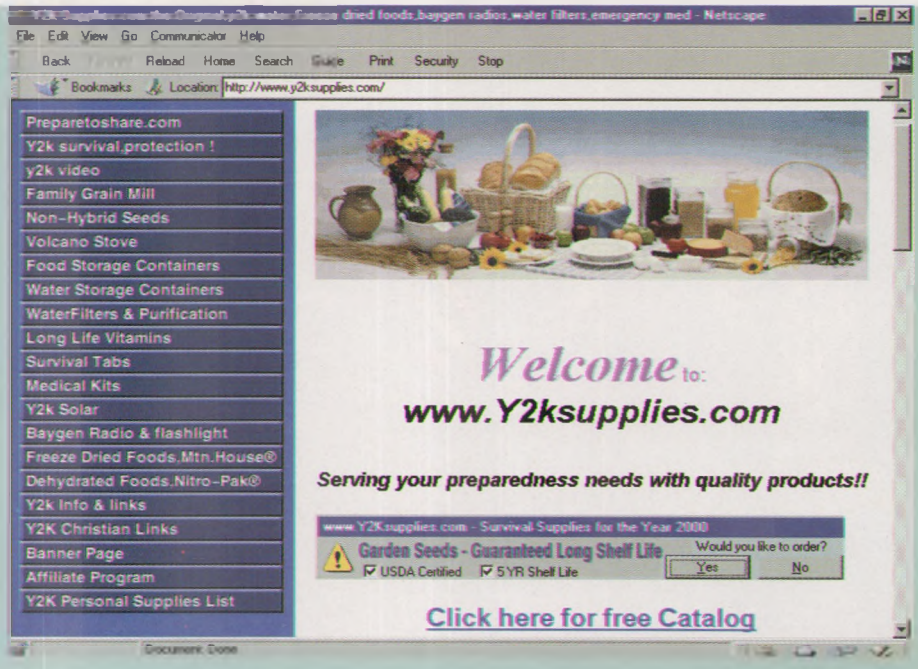
ph: 1800 800 140

OKI

People to People Technology

www.oki.com.au

Panic merchants



For some people Y2K is a wonderful thing. It's been a goldmine for mainframe COBOL programmers. Once considered industry dinosaurs, they are now the most sought-after computer professionals in the world — they are the only ones who can fix the mess they left. Companies involved in the awareness, repair tool and consultancy businesses are doing pretty well too.

It's also terrific ammunition for conspiracy theorists. Could it be, for example, that those COBOL experts and other programmers deliberately created non-compliant software to give themselves a nice little nest egg to retire on? Then there are those who think Y2K is an exaggeration — the perfect way for technical people to scare computer illiterate financial controllers into loosening the purse strings. Others think it is a plot hatched by powerful Western governments that can afford to fix the problem, in an attempt to hamper the growth of developing nations by maintaining a technological advantage.

But most of all, the intertwined confusion of a new millennium and a computer problem is a tasty treat for doomsday prophets and cults. Throughout history, the turn of a century was always seen as a time of uncertainty, but the turn of the millennium seems to be causing many to lose their capacity for rational thought and expect catastrophe. Beyond the partying on New Year's Eve will be many groups expecting the return of Christ, alien landings, or the collapse of civilisation as we know it.

Sooner or later, anyone exploring the Internet for Y2K information will come across Dr Gary North (http://www.garynorth.com/), nicknamed 'Scary Gary'. On the surface, his huge site appears to offer a well-informed analysis of Y2K and as a result, he is regularly quoted in articles as an expert, thus influencing worldwide opinion. One of the top-selling books on Y2K, Edward and Jennifer Yourdon's *Time Bomb 2000* (http://www.yourdon.com/), was allegedly written with some input from North, who believes Y2K will be "catastrophic".

"I'm saying that it's over. Right now. It cannot be fixed," wrote North. "The domino effect of a computer-driven breakdown in supply delivery systems, including the means of payment (banks), will be huge."

But North appears to have an agenda. He has predicted Armageddon in the past — in 1980 he forecast nuclear war between the former Soviet Union and the US, and for years he has published a well-subscribed apocalyptic newsletter called *Remnant Review*. His site is brilliantly parodied at http://www.garysouth.com/, while strong evidence of his ulterior motives is presented at http://www.smu.edu/~acambre/garynorth.htm.

North's reply: "If my critics want to create their own Web sites filled with 'it's not going to be all that bad' evidence, they may do so. I am unaware of any such site on the Web today."

Beyond doom and gloom are the US survivalists, acting on extremist claims that Y2K will cause shortages and social unrest so great that those who have prepared for the crisis and moved to a recommended rural retreat will have to defend themselves against refugees from the city. Even a real estate agent in northern Washington is marketing

reports portfolio by portfolio, the way Cabinet has received its Y2K information for the last 18 months.

The states have met regularly with the Federal Government and on December 17 last year agreed to report at the same time and in the same format. It's easy to be cynical and presume the politicians are uninformed, reaching consensus by just going with the flow, but Campbell believes all governments now recognise the challenge.

"I think that's a tremendous step forward. I think that in my time in politics I've never seen state and federal governments cooperate so brilliantly on an issue," he said, admitting this was an issue with no precedent and little likelihood of recurrence. Campbell is "fairly confident" the Federal Government will be ready to report its Y2K readiness by June.

Scenarios

So, what exactly does the bug do? Is it simply a matter of a few computers going down? How can that possibly damage the economy, your income, your daily life? The prophets of Y2K like to give examples in context. Here are three:

1. You are a consumer. You wake up on the morning of January 1, 2000 with a hangover and fill a glass with tap water. Something's clearly gone wrong in filtration — it smells of chlorine and is undrinkable. You walk to the corner shop to buy mineral

properties with the line, "Y2K is not a concern to us in Pend Oreille County. Come and relax!" (http://www.northcountry-realty.com/).

At http://y2ksurvive.com/ and http://y2ksurvival.com/, you can find instructions on how to stockpile food, water and ammunition — one site even advises that bullets are an investment which can be sold after the crisis at a profit, if not used. Dozens of sites have sprung up offering food storage packages, such as http://www.y2ksupplyco.com/ and http://y2kfood.com/.

In its January 18 issue, *Time Australia* published interviews with computer professionals who were heading for the hills, buying electricity generators and seeking out caves for shelter, supporting North's assertion that technologically savvy people will exit the cities throughout 1999 as they realise the only solution is to run from their creations.

Such beliefs are spreading to prophetic revivalist movements in Australia and New Zealand. For example, at http://www.om.com.au/y2koz/homepage.html, Byron Bay theologian Phil Mason's extensive Y2K site asks, "Is the writing on the wall for Modern Bablyon?", while the New Zealand Revival Bulletin, http://crash.ihug.co.nz/~revival/, awaits millennial events that will bring us to our knees.

As 2000 approaches, prophets of doom will no doubt receive mainstream media coverage and gain a following. Perhaps the best way to take a reality check is to go to http://www.erols.com/steve451/doom.htm, a long-established site run by Steve Davis, to whom Gary North once wrote: "Of course I want to see Y2K bring down the system, all over the world. I have hoped for this all of my adult life."

Simon Vandore

water and see a long line of customers. The staff are trying to prise open their cash register to get change — it just won't do anything it's supposed to. Outside in the morning sun, the street lights suddenly switch themselves on. Their automatic timer switches them off in the evening, and in the darkness four people are mugged for cash, which is getting scarce — nobody can find a working ATM.

2. A company makes and sells furniture. Its timber comes from a supplier across town. On January 3 an expected shipment fails to arrive. The boss has to drive over there anyway, so he calls into the warehouse. Huddled around the front desk computer are several stressed employees — their computer seems to have lost all its records and they don't know anything about the shipment to the furniture company. Entering its name causes the supplier's computer to print several overdue bill warnings, even though the boss knows he's paid up to a week ago. It thinks the most recent bills are 99 years overdue.

3. A diplomat is due to fly to the US. He's an hour late getting to the airport — every second set of traffic lights was out. He gets to the airport and discovers his flight is also delayed, so he rings a contact at the airline. When will the plane be leaving? Nobody's quite sure. Pilots crossing the Pacific report that air traffic control is non-existent. After a few near misses, the airline desperately needs to plot a new route, but it's nearly impossible to string together enough safe airspace. The diplomat loosens his tie — the airport's airconditioning has failed.



Above: Senator Ian Campbell is responsible for the Federal Government's Y2K plans.

You get the picture. But while there will be problems along these lines in disparate areas and they may affect you, most of the above examples are now quite unlikely, as the organisations involved will have taken precautions to prevent them by now. Companies such as banks, airlines and water treatment facilities are considered to have a high awareness and the resources to act — the most likely example above is the second, involving a supply breakdown between two SMEs. But mainstream insurance companies still won't insure against Y2K.

Many Y2K problems are deadly serious — it has been claimed that up to 80% of NSW hospital equipment (defibrillators, ventilators, and ECG and ultrasound machines) will require replacement or upgrading before 2000 — but other date-related errors simply cause amusement . . . and paperwork. In the US, for example, a 101-year-old man's car insurance premium was automatically tripled because a computer decided that he was a high-risk young driver at the age of one, while a 104-year-old woman received a letter notifying her that she was enrolled in kindergarten, having turned four.

You may find your own home PC has a few problems after 2000. Some of the older programs might not work properly, or if it's an older PC you might find it thinks the date is 1900 or 1980. But it's unlikely things will cease altogether, and none of this will be disastrous — unless the PC is used for business, in which case you need to figure out some workarounds or upgrade the software and equipment well in advance. This is especially important if you rely on spreadsheets, because calculations using two-digit years are a real danger which may even remain with you once all your equipment is compliant — the devil is in the data.

Contrary to popular opinion, the Apple Macintosh is not immune to Y2K problems. Although it doesn't have real-time clock (RTC) or BIOS issues, it is as susceptible to programming problems as any computer, as are Unix-based systems. On the other hand, unlike

Microsoft Windows, Unix variants and the Macintosh do not have significant Y2K problems at the operating system level.

Consumers and SMEs will no doubt be bombarded with advertising by Y2K repair tool companies for the rest of this year. There is no perfect solution, but the most popular applications are reasonably helpful if you're not sure where to start. Beware of the number of simple BIOS fixes and real-time clock checkers that claim to provide a full year 2000 solution, but which may actually be addressing only about 1% of the problem. If you buy a program that claims to find and help you tackle all the problems on a hard drive, be sure it's the right one for the job and that you're not wasting time on things you don't really need to fix.

Graeme Inchley warns: "Year 2000 readiness is predominantly contextual. In other words, it depends on the circumstances in which you are using the software or the product, whether it's going to be ready for the year 2000 or not, and indeed whether it matters. So whether a piece of word processing software is 2000-ready or not is not nearly of the consequence that, say, a piece of accounting software might be, simply because of the context in which it's being used."

Continuity

Crisis management skills will be vital to minimise the impact of any Y2K disasters on any group in business or society as a whole. Such events will be more easily dealt with if all the possibilities are considered in advance, with harm-minimisation strategies mapped out as a priority.

Just 13% of companies surveyed by the ABS had done any contingency planning, and a mere 20% had any concrete information about the readiness of their suppliers and customers. Companies need to plan alternative avenues of supply and distribution, while keeping an eye on the rest of the world — whether on overseas suppliers or the situation in general.

"[Interconnectedness] is not something we should be afraid of," said Campbell. "The more we're interconnected the more prosperous we're going to be — but because we are [interconnected], what happens in South-East Asia or other parts of the world is going to have an impact on us . . . parts of the world that international consultants tell us are behind the eight ball. I suspect in many of those places the fixing up of Y2K problems could take a long time. It could take a year or a couple of years, although you're stabbing in the dark guessing at these things.

"We'll do whatever we possibly can within our resources to help our neighbours. We will be good neighbours, good Samaritans, because it's very much in our interest to make sure our trading partners get through this and that we can continue to trade."

Expert opinion varies on the likely impact on this country. British Y2K guru Karl Feilder has predicted a few of years of serious interruptions from 1999 to at least 2001, and he's not alone. Slightly more conservative is Peter Wright, vice-president of systems delivery practice for DMR Consulting Group, who predicts an 'exposure period' for Australia of four to six weeks from January 1. The economic impact could be severe.

"Remember the gas problem we had in Victoria?" asked Wright. "That was a very good indication to say 'What if the embedded systems in the pipeline didn't work and the electricity didn't work and things like that?'. As I understand it the economic impact of that was $50 million a day. So in industry they were talking about closing down, saying take extended leave. So that's something to consider, and remember that $50 million a day was only in Melbourne. You can imagine the effect across the world."

Other examples include the Auckland power crisis and the Sydney water scare — both problems not only inconvenienced millions, they cost hundreds of millions of dollars.

"What you can actually determine from the event is how long it takes for that business to recover and get back to normal, and what the impact is on other businesses," said Wright. "Four to six weeks I think is the impact period where organisations need to be extremely aware of what's going on and possibly have contingency plans to say 'Well, how would we survive that?'"

Personal contingency plans are also being discussed. The Red Cross in the US, for example, has released a list of preparatory measures (http://www.redcross.org/disaster/safety/Y2K.html) which treat Y2K as something akin to a natural disaster: "Be prepared to relocate to a shelter for warmth and protection during a prolonged power outage . . . Stock disaster supplies to last several days to a week . . . As you would in preparation for a storm of any kind, have some extra cash on hand in case electronic transactions involving ATM cards, credit cards, and the like cannot be processed . . ."

"We've got to put this in context," explained Inchley. "If you live in Canada, or . . . if you live in Darwin and you have been subject to reasonably regular cyclones over the years, it is second nature for

Useful contacts

New South Wales Year 2000
http://www.y2k.gov.au/

Y2K Register
http://www.y2kregister.com.au/

Institute of Engineers Y2K Directory
http://www.ieaust.org.au/y2k/

Y2K News Magazine
http://www.y2knews.com/

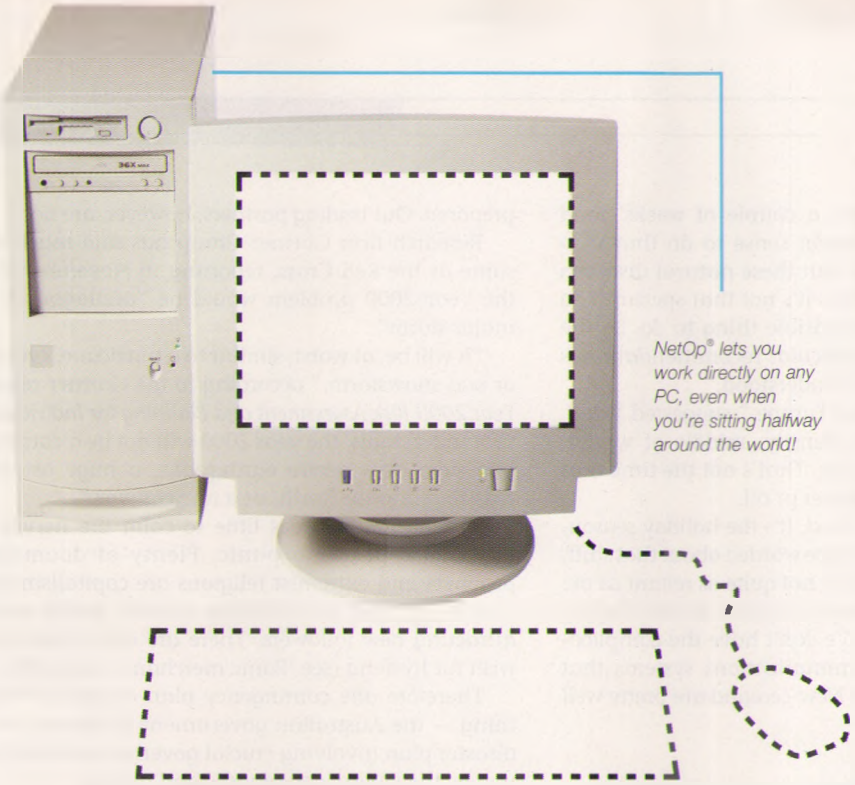
2000aware
http://www.2000aware.com/

year2k Industry Program
Phone: 1800 11 2000
http://www.year2k.com.au/

The Year 2000 Information Center
http://www.year2000.com/

The Millennium Problem in Embedded Systems
http://www.iee.org.uk/2000risk/

Taskforce 2000
http://www.taskforce2000.co.uk/contingency.htm



NetOp® lets you work directly on any PC, even when you're sitting halfway around the world!

At last! A **full-featured** remote PC control system that **does what it's supposed to** without freezes or crashes. NetOp® **installs in minutes.** It works on **any PC operating system** including Windows NT 4.0 and 3.x, Windows 95, 98, 3.1x, OS/2, and DOS. And it uses **any communication standard:** TCP/IP, Internet, NetBIOS, IPX, Modem, TAPI, ISDN Capi. Best of all, you can **try it FREE for 30 days!**

If you're expected to be in two places at once, here's how to get there...

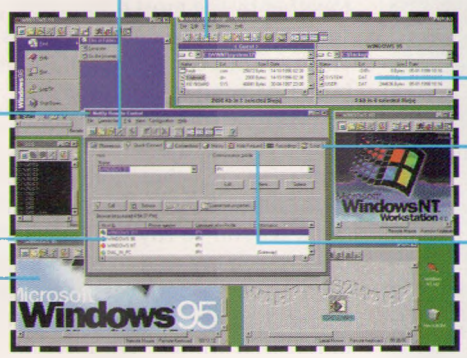
NetOp® Version 6.0 — fast, easy, and **reliable** remote control software for all the PCs you need to work on.

Full range of security options

Type-and-talk communication — ideal for support functions

Delta file transfer, crash recovery, copy, move, clone, and synchronize features

Fast and easy drag-and-drop file transfer



Simple browse-and-click PC connection

Powerful scripting tool for scheduled transfers and program launches

Individual windows or full-screen zoom in any resolution

Sophisticated help-request feature

Your keyboard, mouse, and screen work as though the computer was right there at your side!



SPEED

"...the fastest time by far over a network under Windows 95."

PC Magazine

www.danware.com

Order your FREE full-function trial copy today!



CheckMARK Technologies
Free Call (Outside of Sydney): 1800 504 025
Tel: 2 9957 6970
Fax: 2 9956 8742
Email: **sales@checkmark.com.au**
Web page: http://www.checkmark.com.au

NetOp

The fine art of Remote Control

the people there to have a couple of weeks' food stored. Because it's common sense to do that in a zone where not just Y2K, but these natural disasters can occur. The issue here is it's not that special. You do it because that's the sensible thing to do. So the context in which that particular recommendation is made has to be very well understood."

"Look at America and Europe," suggested Dodd. "Far greater population density, middle of winter, and in some cases 30 below. That's not the time that you want to run out of power or oil.

"In the Australian context, it's the holiday season, it's hot — we're not going to be worried about that stuff, and we won't have to. We're not quite as reliant as the higher population density countries on the supply chains of food delivery. We don't have the complications of multiple telecommunications systems that they do . . . Australia and New Zealand are pretty well prepared. Our trading partners, however, are not."

Research firm Gartner Group has said much the same as the Red Cross, reporting in November that the year 2000 problem would be "analagous to a major storm".

"It will be, at worst, similar to a hurricane, cyclone or bad snowstorm," according to the Gartner report, *Year 2000 Risk Assessment and Planning for Individuals*. "For individuals, the year 2000 will not be a catastrophe such as a severe earthquake, a huge asteroid crashing into the Earth, or a nuclear war."

Such language does little to calm the nerves of those susceptible to panic. Plenty of doomsday prophets and extremist religions are capitalising on Y2K as an end point to the current world order, attracting new followers. There are even those who wish for hysteria (see 'Panic merchants', page 80).

Therefore one contingency plan overrides everything — the Australian government is working on a disaster plan involving crucial governmental departments, the emergency services and utilities.

"We're looking at a whole range of communications strategies to ensure that people have the best information about what they should be thinking about," said Senator Campbell. "We need to inform people about likely risks and also inform them about things that aren't going to be at risk."

For example, Australia's banking and finance sector is in pretty good shape. Work was started early and the government is keen to avoid mass withdrawals of cash by panicked citizens, but won't give too many specifics on its plans.

"We want people to make sensible decisions about what they do, so we're looking at a communications strategy to do that — we're discussing that at federal and state level. We're looking at systems and emergency preparations. I don't think we'll create a tome called an emergency plan, but there'll be a range of integrated strategies that are pulled together by the most responsible people," Campbell said. "We will involve ourselves in strategies that ensure that people behave rationally and sensibly based on good information.

"What we're looking at doing is making sure that people can do the sorts of things they did last New Year's Eve and that holiday week as they did this year," advised Campbell. "That's the plan, and I think it's fair to say that Australia's pretty well on track to achieve that in most of those key areas. And we're making daily assessments of those sorts of things. I think what we do have to plan for is the unforeseen things. We have to say, 'What is the impact if one of our major trading partners has significant failures — is there going to be a backwash effect to telecommunications, for example, or shipping, or aviation, or whatever?' I'm personally quite confident that our aviation systems and all of our major airlines will be in very, very good shape."

Though his tongue was slightly in his cheek, Campbell admitted panic among the populace was of genuine concern to the Howard Government: "We could reassure people about the provision of services from a utility, or from a bank, or from an airline or

Top 10 Y2K myths

1. THE MILLENNIUM DOESN'T ACTUALLY START UNTIL 2001.
So what? Y2K is primarily about the rollover from 99 to 00.

2. YEAR 2000 PROBLEMS WERE INVENTED/OVERHYPED BY GREEDY CONSULTANTS.
Any crisis, real or imagined, attracts unscrupulous profiteers. To a point though, Y2K is fact.

3. MOST Y2K PROBLEMS WILL BE MINOR.
Thousands of minor problems happening simultaneously? That's the major problem.

4. Y2K WILL CAUSE THE END OF THE WORLD AS WE KNOW IT (TEOTWAWKI).
Prophets of doom love significant dates. Bored people make great disciples.

5. NEW YEAR'S EVE IS A FRIDAY. I'LL HAVE THE WEEKEND TO FIX IT.
Companies which started Y2K work years ago are still racing to finish. Avagoodweekend.

6. I TESTED/PATCHED THE BIOS AND IT'S FINE.
Great. Now what about your software, operating system and data — and those of your suppliers and customers?

7. PLANES WILL FALL FROM THE SKY, MEDICAL EQUIPMENT WILL FAIL, BANKS WILL COLLAPSE.
Problems in those areas were the first to be fixed.

8. HAVE SOME CASH AT HAND, STORE EXTRA FOOD, ENSURE A WATER SUPPLY.
It's always a good idea to prepare for emergencies.

9. BUY A GUN TO PROTECT YOUR FAMILY FROM HORDES OF MARAUDING Y2K REFUGEES.
Survivalist rubbish. Spend the money on books and music.

10. MY WHITEGOODS WILL BE JUNK.
How many microwaves, dishwashers and refrigerators need to know the century? Keep an eye on your VCR, but don't expect it to explode.

There are already 8 reasons to buy our colour Multi-function Centre™ and here are two more

Brother MFC-7160c. It can do everything, and do it fast, in colour and at impressive resolutions. If you are

Australian Personal Computer February 1999
Editor's Choice Award

Editor's Choice apcmag

Brother has managed to deliver an innovative and well rounded product, that offers speed, versatility and above all excellent value in the MFC-7160C. Its

PC Magazine February 1999
Editors' Choice Award

PC MAGAZINE AUSTRALIA EDITORS' CHOICE

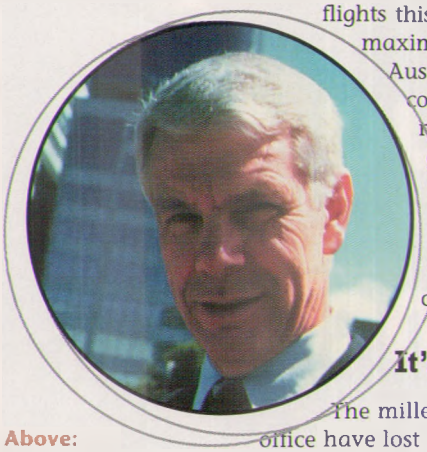


The award winning Brother MFC-7160C boasts eight features including colour printer, plain-paper fax, colour copier, colour scanner, Message Centre™ (with digital answering machine), hands-free speaker phone, colour PC fax, and exclusive colour video printing and video capture. For further information please visit www.brother.com **You Can Always Rely on Your** brother.

whatever, but people don't believe us because they never trust governments anyway . . ."

There are reports that Senator Richard Alston and Prime Minister John Howard will both take domestic flights this New Year's Eve, in an attempt to maximise public faith in Qantas, Ansett Australia and the national air traffic control system. Campbell has not yet made up his mind. "I might be on the ground making sure the emergency plan's put in place."

If you're not the worrying type, at least take note that January 2000 will probably be a good time for dirt-cheap international air tickets.



Above: Y2K is a 1999 problem, said Graeme Inchley, CEO of the government's year2k Industry Program.

It's almost here

The millennium countdown clocks in *APC*'s office have lost 50 of their 365 days from the time the two Y2K features in this issue were conceived until they were written. Both articles overran their submission deadlines and the editor wasn't pleased.

That's not really good enough on our part, because Y2K is a deadline that cannot be messed with. Miss this one and there may be a higher price than the wrath of your boss. But even Y2K has its good side.

"This issue is bringing home to people, once they start looking at the processes they use, just how much their businesses use PCs ," said Unisys consultant Alister Grigg. "How much local managers and people like that — line managers and project controllers — use just simple things like spreadsheets and so on to run their business. To do billing and time allocation, all that sort of stuff.

"The boardrooms of Australia were well behind the boardrooms of the United States in terms of technological understanding," the Federal Government's chief advisor on information technology, Paul Twomey, told the ABC in February. "I think Y2K is playing an important role in getting catch-up in that understanding."

If you've read the above and have just woken up to the problem, the best thing to do is be honest about it. Especially if you run a business that hasn't yet made any Y2K preparations.

"Get onto the Internet or ring an accountant or a member of the Institute of Engineers, find someone who's qualified to deal with Y2K and get some information about it," instructs Campbell. "Get the government's information bulletin if you want. And spend a couple of hours reading about the problem. Try to understand it's not just a PC problem, it's not just a computer problem, it affects systems, it affects airconditioning systems, it can affect lifts, it affects security systems, access systems, telecommunications systems. And understand that it's all-pervasive. Even if your own business is OK, someone who supplies you may not be, so that could affect your business, and your customers may be affected — if they're affected you may not have a business next year."

"I would say to any company that hasn't done something about it that it's never too late. It's better, quite frankly, if someone wakes up on the 15th December and says 'Oh hell, it's time' . . . It's obviously [even] better to start taking those steps in March or April than it is to start panicking in October or December. Because in those months it may well be that the resources you're looking for to change a piece of processing equipment or whatever may not be there."

Best get moving then, for the senator will accept no excuses. "With cyclones, with floods, with bushfires, with gas crises, with water crises, with electrical blackouts, massive lightning storms, things that are outside our control — you never know when they're going to hit. With this one you know it is going to hit on that day, so it gives you an opportunity to be very well prepared."

Expected year 2000 completion date

INDUSTRY(a)	AWARE OF THE YEAR 2000 PROBLEM %	INTENDING TO UNDERTAKE YEAR 2000 WORK %	BY JANUARY 1999 %	BY JULY 1999 %	BY DECEMBER 1999 %
Agriculture	91	43	6	20	40
Mining	94	72	19	49	71
Manufacturing	93	62	11	32	60
Electricity, gas and water supply	98	86	10	65	84
Construction	91	50	7	30	48
Wholesale trade	98	75	24	52	73
Retail trade	89	51	11	31	48
Accommodation, cafes and restaurants	92	50	11	31	48
Transport and storage	95	48	12	34	48
Communication services	93	62	18	40	62
Finance and insurance	98	73	24	51	73
Property and business services	93	63	12	36	62
Education	95	60	13	36	57
Health and community services	96	70	15	43	69
Cultural and recreational services	93	54	12	31	53
Personal and other services	90	59	8	34	57

SOURCE: Australian Bureau of Statistics [ABS Catalogue No. 8151.0]

Treat yourself...

...to a PC upgrade.

- Save yourself time and money by **upgrading** your **existing** PC.

...to more RAM

- Speed up your PC and really enjoy the latest software available.

...to HyperRam.

- The risk-free brand name in memory technology.
- Every product individually tested.
- Available for PCs, laptops, printers, cameras etc.
- Free technical support hotline.
- Lifetime warranty.
- Available from Authorised Hypertec Retailers.
 (see listing on www.hypertec.com.au)

For more about Hypertec quality PC upgrade products, just fill in the following and fax it to us on **13 13 09**.

Please send me an information pack on :

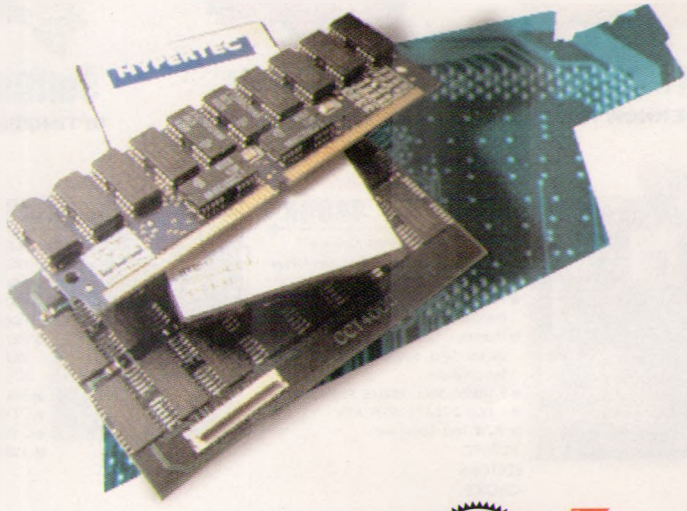
	Please Tick
"HyperRam Memory Upgrades" brochure	☐
"RAM - All you ever wanted to know" booklet	☐
"Memory Configuration Guide" on 3½" disk	☐

Name :

Address :

Postcode :

Email :



Harvey Norman

Easter Show MegaBag Special

15% off

* Offer limited to Sydney stores. See *MegaBag* voucher booklet for further details.

HYPERRAM

WARRANTY LIFETIME WARRANTY

Quality Endorsed Company

HYPERTEC

Like more info? Please call our Customer Service Team on 13 13 07 or visit www.hypertec.com.au



Ultimate System Armor II



TOP Tech. II
WE KNOW THE TEMP



PC Alert II
YOUR PC DOCTOR



SoftCooler II
OPTIMIZED COOLING



3D! Turbo II
ACCELERATE YOUR DISPLAY



CPU Plug & Play
FINE TUNING YOUR CPU

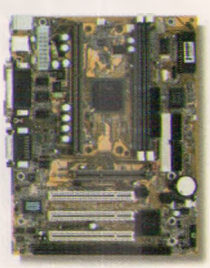


The Best Upgrade Platform

MS-6153 • 440BX

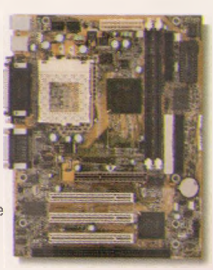
- Support Intel® PPGA Celeron™ processor up to 466MHz and future 100MHz FSB CPUs
- Free of Jumper and DIP Switch. No manual is needed for your CPU Upgrade
- Provides multi-sensors for users to detect CPU, System and VGA/HDD temperature
- 3 DIMM. Max. 768MB SDRAM
- 5 PCI/ 2 ISA/ 1 AGP, ATX
- *Y2K* Test Approved

RUNIPC EDITORS CHOICE



MS-6156 • 440BX/ZX

- Support Intel® Pentium® II & Celeron™ processor up to 500MHz or faster
- Free of Jumper and DIP Switch, no manual is needed for your CPU upgrade
- Provides multi-sensors for users to detect CPU, System and temperature (Option)
- Build in Creative® 1373 PCI Andio Enhance
- 2 DIMM. Max. 512MB SDRAM DIMM
- 3 PCI/ 1 ISA/ 1 AGP, Micro ATX
- *Y2K* Test Approved



MS-6160 • 440LX

- Support Intel® PPGA Celeron™ processor up to 366MHz or faster
- Free of Jumper and DIP Switch, no manual is needed for your CPU upgrade
- Provides multi-sensors for users to detect CPU, System and temperature(Option)
- Build in Creative® 1373 PCI Andio Enhance
- 2 DIMM. Max. 512MB EDO/SDRAM
- 3 PCI/ 1 ISA/ 1 AGP, Micro ATX
- *Y2K* Test Approved

The specification is subject to change without notice. *Pentium is a registered trademark of Intel Corporation. *MMX/Celeron is a trademark of Intel Corporation. *All brand names are registered trademarks of their respective owners. *Any configuration other than original product specifications is not guaranteed

MSI MICRO-STAR INTERNATIONAL
http://www.msi.com.tw

Australia
MSI Computer (Australia) Pty. Ltd.
Tel: 61-2-9748-0070
Fax: 61-2-9748-0799
http://www.msicomputer.com.au

Dealer Wanted!

MS-6107 MS-5130 MS-5128 MS-6106 MS-6111 MS-6116 MS-6111 MS-5169 MS-6103 MS-5164 MS-51_9 MS-6111 MS-5147 MS-5169 MS-6119 MS-6119

N1996

PC IT
The Global Computer Communications & Networking Exhibition
PC IT Location : M27

18. - 24. 3.1999
CeBIT HANNOVER
Hall 13, Stand H02

Just how should you be dealing with Y2K?

By Simon Vandore

The Y2K repair process

A company in Melbourne is marketing a millennium bug repellent spray, "a solution to the problem at hand with a simple swish of the wrist and spray of the secret formula".

It's a joke, of course. There is no magic bullet solution to Y2K, and in many cases the real solution is hours of dull, painstaking work. At this point in 1999 it is a bit late to be waking up to the problem, but the reality is that many businesses are still to discover the extent of their year 2000 difficulties. For others, 1999 was always going to be the year they would finally address PC and data problems.

However, professional repair methodology is now focusing more on business continuity than on actually taking inventories of hardware and software, applying patches, or performing intricate analyses of data. Strategies to ensure survival and insulation from external problems are now more important than work on the ground. There's no precedent for Y2K, so planning for all contingencies is the last line of defence.

It's never too late to start genuine repair, however, especially if your organisation is a small-to-medium enterprise (SME). The more you fix now, the less you will need to repair later; you will also decrease the risk of problems with day-to-day operations. The first step is to convince those who control budgets that there is a real problem. Then you have to show them how it will affect the way business is done. There are differing views in all organisations, so somebody has to present the evidence.

"When your managing director or your decision maker understands the issue and the impact on the business, it rapidly becomes priority number one. Nothing else matters," said Philip Dodd, year 2000 program marketing director for Unisys Australia and Asia. He has worked with Canadian Y2K guru Peter de Jager and has been involved with large-scale remediation projects in this country for about four years.



Dodd's advice for anyone starting now is simple. "I would suggest that they need to start right at the top. In other words, what is the organisation in business for, what is its reason for being, what does that organisation depend upon technologies-wise, and therefore what are the important things to look at and qualify whether they're going to be impacted? Don't look at everything, you haven't got time.

"It doesn't start with looking at all the PCs in the building and seeing whether the BIOS will work, that's almost irrelevant. Plan for the fact that there will be some challenges, and manage your way through it, but sort out the critical things first . . . If I was starting a project two years ago, yeah, I would have done an inventory. Today, don't start it with the inventory — start it with the managing director and the board, or equivalent, saying 'What are we really here for? What's the critical stuff?'"

Smaller organisations, on the other hand, may still benefit from the lessons people like Dodd have learned in bigger projects. An SME is likely to have a more centralised IT setup where repair is a less complex process, but is by no means simple.

The process

Eliminating the 'bug' involves upgrading, patching or replacing equipment and software that cannot distinguish between centuries. Examples range from PCs to such things as routers, network operating systems and embedded chips that run machinery or the systems that run a building. One non-compliant part can affect the whole, and stored data generated by this equipment perpetuates the risks.

Generally the reasons for action are different in every case. If, as is common, a piece of software measures elapsed time by subtracting a past date from the present one, errors can occur if the past date is in a 20th century year and the operation

involves subtracting from a post-2000 date. For example, in two-digit years, 00 minus 99 equals -99, whereas in the four-digit year calculation 2000 minus 1999 equals 1. Apply this to billing, forecasting, expiry dates and scheduling, and things start to get pretty confused. Then there's myriad other possibilities, such as programs that use 9/9/99 to signify a termination point and those that are not compliant with the leap year in 2000 (normally a century is not a leap year, but 2000 will be). All these problems can cause miscalculations.

While there are many options on the market, the two PC-based Y2K repair tools that have gained the most respect with professionals are Greenwich Mean Time's (GMT's) Check 2000 and Viasoft's OnMark 2000, in various incarnations. (Symantec's Norton 2000 is actually OnMark 2000, and GMT has licensed its product to IMSI.) But there's no tool that does everything. These two are most useful for obtaining and understanding information about systems, and are available in versions that can be deployed across a network. Another worth mentioning is the Australian-developed MFX 2000 (from MFX Research), which uses some multi-pass proprietary algorithms to 'automatically' make software and data compliant, at the user's risk.

Hardware fixes range from BIOS upgrades to software programs that compensate for hardware inadequacies, and rather expensive ISA cards that override the non-compliant BIOS in old PCs which must be retained.

Citrix, the driving force behind the thin client industry, likes to push an alternative solution, basing all computing around a compliant server. In that case, it doesn't matter if non-Y2K compliant PCs are the clients, because all they do is display video and handle mouse and keyboard input. All other operations happen in a session on a compliant server.

Completing the mind-numbing task of altering years and years of data created with such faulty equipment and software is just as important. Each instance where the century is unspecified really needs to be changed, because this can create havoc for otherwise compliant hardware and software. On the other hand, it's almost impossible to be sure everything has been found, so it's up to newer operating systems to try to catch the escapees. While Windows 98 itself is not fully Y2K compliant until you add patches from Microsoft (see http://www.microsoft.com/technet/year2k/) to fix various system files and the Java Virtual Machine (JVM), the operating system does allow the user to set a 100-year window for the interpretation of two-digit years. The default settings put them between 1930 and 2029, but you can set the parameters to anything you like; unfortunately this can also be used to sabotage Y2K compliance by setting the years to values like 1630 and 1729! But using the operating system as a safety net is a solution, of which Peter Wright, vice-president of systems delivery practice with 2000 specialists DMR Consulting Group, is a big fan.

"The PC business is something where everyone can sit down and write [what] they think is a good solution. There are a lot of people putting out similar products. But I much prefer taking a strategic approach and saying 'let Microsoft provide the solution' because you don't know how many things are going to get tangled up in memory," Wright said.

"What happens is a lot of organisations extract information out of a whole load of disparate systems around the place, pull it together in a spreadsheet and run their organisation on the basis of that," said Wright. He agreed that the ultimate data risks are in organisations running spreadsheets hundreds of megabytes or even gigabytes in size.

Unfortunately, not everything can be replicated and tested in labs with redundant equipment. Sometimes it's necessary to go to individual PCs and interrupt work time, particularly on standalone machines.

"The difficulty I think often is to justify to the users of the machines why you're doing it," said another Unisys Y2K consultant, Alister Grigg. "And ultimately with the data — the classic case — it often comes down to [the fact that] the people who actually use the PCs are the only people who can actually fix some of the data. Because they're the ones who understand how it's used . . . You can help them out with identifying the errors, but it's often not appropriate to fix it for them."

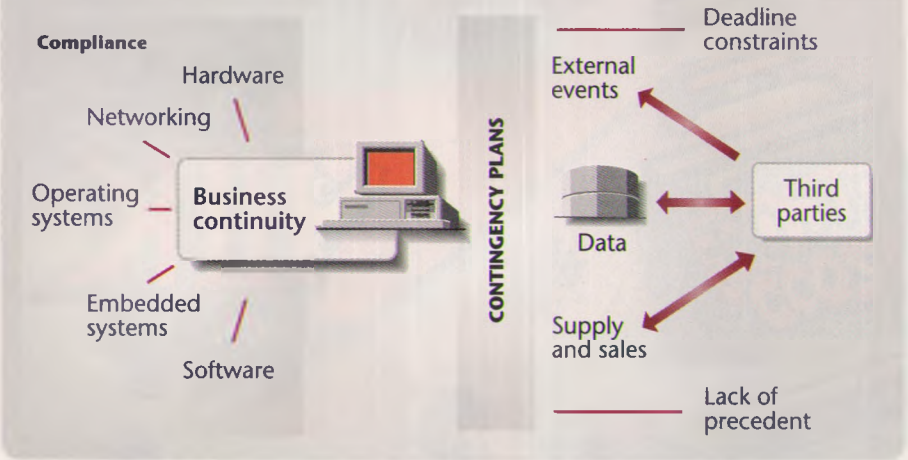
Distinguishing between what is salvageable and what is not is a matter of comparing budgets with resources and priorities. Greenwich Mean Time's software manuals dramatically describe a process of triage, the brutally sensible wartime practice of using limited medical resources only for those whose lives can probably be saved, at the expense of those suffering painful deaths and the walking wounded. GMT's theory is to apply this to Y2K-affected computer systems and start with mission-critical equipment that is repairable, then worry about replacing lost causes and addressing less crucial problems. Placing items into these categories is the hardest part.

"It very much depends on the customer's situation," said Grigg. "Considerations you might make are: the other activity that's taking place within that environment — if they have a requirement to roll out new technology anyway it may be more effective for them to just replace equipment or to replace applications. If their equipment or applications are very current, the issue may simply revolve around fixing the data and validating the data to the current standards."

One clear issue is that all 16-bit applications should be replaced, and Windows 3.x should be discarded. It's virtually impossible to make these compliant.

But in some cases it's also quite valid to perform no repair at all, if your contingency planning is solid enough to cope with whatever may arise. For example, if

Y2K effects on business continuity



automated processes can easily be switched to manual operation and you can switch to alternative suppliers should your current ones experience trouble, huge expenditure to fix relatively minor problems might not be justified. Tread carefully and explore all possibilities.

Contingency planning

Preparing for all that may happen involves examining both internal and external angles. While speed is of the essence in dealing with inhouse crises, the Y2K health of suppliers and customers also affects a business.

Larger Australian companies, such as major supermarket chains, have even spent money to ensure their suppliers are as ready as possible, to avoid a domino effect of shortages and reduced sales. They have mapped out alternative supply strategies in case their current sources are hamstrung.

Perhaps the biggest third-party risk for Australia comes from suppliers and customers in Asia, where the currency crisis has all but destroyed Y2K repair efforts.

"Their focus of course has been on economic survival, not on fixing the problem — it's a year away," pointed out Wright.

There's also the fact that the 2000 changeover in Australia happens during the peak holiday season, when there are traditionally less people on the ground to deal with a crisis.

"Another thing an organisation should be doing now is working out what sort of transition management they will implement," said Dodd. "For example, how many of the senior executives and critical support staff within the organisation are

How do Y2K repair tools work?

So you've got a Y2K analysis program to check your system or network — but what exactly do these programs look for, how do they test your system and how do they go about fixing any problems that they may find? We looked at Symantec Norton 2000, GMT Check 2000 PC, Prove It 2000 and MFX Research's MFX 2000.

There are four main areas that need to be analysed and repaired if a problem is found — these are the system BIOS and real-time clock (RTC), the compatibility of your operating system and store-bought software, the compatibility of custom software and applications, and the compatibility of your data.

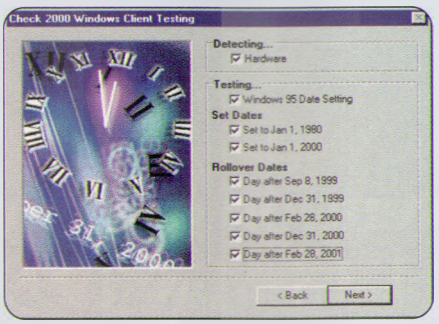
The most pressing issue is the BIOS and RTC — if there is a problem with these two then they will cause havoc for your other applications. The RTC stores the date and time and continues to tick over even when your PC is switched off. Unfortunately, the RTC only stores the last two digits of the year with the century date held in CMOS in what is called the century byte. The BIOS compiles the date from both the RTC and the century byte and passes that information along to your OS and applications.

However, when the RTC switches over to 01/01/00, the century byte does not get updated. If your BIOS is not Y2K-savvy, it will reset back to 1900. For users of DOS, Windows 3.x and Windows 95, it will translate this into 1980, the first year with which it is capable of working.

The Y2K programs check for the ability for your PC to switch over to 01/01/2000 correctly. Not only that, but due to the workings of the Gregorian calendar, 2000 is a leap year, whereas the year 1900 was not. Any Y2K program worth its salt should test for this.

Testing the BIOS and RTC is a simple matter of rebooting the PC and letting the Y2K program take over. It winds the clock forward to a few seconds before a rollover date and then monitors what your PC does. Norton 2000 also checks the BIOS and RTC's ability to manage dates accurately during 2000. GMT's Check 2000 PC goes one step further and will test your system for compliance with the 'end of time' bug (9/9/99) used frequently by some programs.

Fortunately, if a problem is found with your BIOS and RTC the solution is simple. GMT, Norton and MFX come with BIOS fixes that run during startup and take care of the problem, and Prove-It has a TSR solution. If these don't work on your



machine, then using a flash upgrade to your BIOS may be in order, but it is extremely important that you use the correct one.

The next step is to take a look at your operating system and off-the-shelf applications. Most recent applications should work fine into the next century, but how can you tell which ones? Both the Norton and GMT packages can cross-reference all installed programs against their own databases. Norton's is compiled from manufacturer recommendations, and GMT's is a mix of recommendations and its own Y2K tests. Unfortunately, no package here can offer a guaranteed fix for any non-compliant software, but it will tell you what needs upgrading.

Harder to check and regulate is custom software and applications. GMT and Norton will scan for date problems within databases, spreadsheets and ASCII files which may be the only way you can test a custom program for compliance (provided it uses these file types). Otherwise it is best to contact the programmer or vendor that sold you the software.

Even though a software package may work into the next century, it does not necessarily mean that you won't encounter problems. Many packages use a 'pivot date' to decide whether a two-digit year is from this century or the next. An example of this is Excel 97. Any two-digit date from 00 to 29 is considered to be from 2000 to 2029 and any other date is from the 1900s. This will only be a problem if you have not been entering in four-digit years in your spreadsheets and applications. Norton 2000 will make copies of your spreadsheets and colour code the cells depending on the level of severity.

This leads us to the final problem with Y2K compliance, and the most time-consuming to fix. It doesn't matter how compliant your software is or how well your PC works; if your data is invalid then you may as well give up. Norton, GMT and MFX will scan through spreadsheets and databases and check for date dependency problems. Changing these entries is extremely time consuming, but will prove to be worth it in the end.

No matter what course of action you take, though, it is important to remember that no single package contains a magic wand that will make all of your Y2K problems disappear.

Darren Ellis

The key to new IT solutions? Don't miss Queensland's largest IT exhibition.



The Global Computer Communications & Networking Exhibition

Brisbane Convention & Exhibition Centre

11-13 May 1999

Tues 10am - 6pm • Wed noon - 8pm • Thurs 10am - 5pm

Feature Pavilions: Internet • Software • IT Recruitment • CADWorld

Plus: Free IT seminars

Register via the PC IT Website for your free entry ticket www.ausexhibit.com.au/pcit/

Business visitors welcome. Persons including children not in this category will not be admitted.

AES Australian Exhibition Services E-mail: pcit@ausexhibit.com.au Phone (03) 9820 8522 Fax (03) 9696 2106

going to be working over Christmas and New Year? What are the economic impacts on the Australian economy — the tourism and travel industries, for example?"

It's also very important to make the extent of your contingency plans public — if you're confident in them, show it. Several airlines around the world, such as British Airways and China's state airlines will require their top executives to be in the air on New Year's Eve. It's quite a good public relations scheme to buck the trend that says it's a bad idea to fly that night.

"That's a very valid attempt at saying to the people with whom they deal and the people who fly on their planes, 'We've got it under control'," said Dodd. "It's not to say that they will not be affected in some way because no-one knows for sure how the effects will manifest themselves . . . They are confident that they are putting in place appropriate management action and contingency planning to minimise the impact. And should there be any consequence likely, they will manage it. It's like any other difficulty, like okay, I don't have any fuel this week, what are we going to do about it? Or the sandwiches for economy class and the steaks for first class didn't arrive. What are we going to do? Well, we'll go and visit McDonald's and get a load on, or something to that effect."

Public relations

Honesty about preparations is very much in vogue. Some people question the value of claiming that anything is compliant when it can be affected by outside factors, but the Australian Stock Exchange (ASX) has required absolute openness from its members on their Y2K readiness and encouraged the government to pass 'Good Samaritan' legislation (before Parliament at the time of writing) to protect them from the legal consequences of innocent errors.

"They need to be as open and honest as possible," said Graeme Inchley, CEO of the Commonwealth Government's year2k Industry Program. "The legislation that will be brought down in Australia will protect them in the event that the information they give someone causes problems with that other person, as long as it wasn't a statement made deliberately, misleadingly or mischievously or whatever. For everyone's sake, be open, be honest, share information with your customers and suppliers, expect them to do the same with you, and in fact learn from each other. And that will help us overcome the problems."

To help its members come up with statements of their own Y2K readiness, the ASX issued a definition of compliance: "The system or service has undergone an internal review process. In addition, as a minimum, each critical application has been or will be tested using an appropriate set of representative dates. On the basis of this review and any associated test results, the ASX assesses that the risk of material failure of the system or service as a result of date processing problems is not significant."

"Now that's not saying it will be compliant," said Inchley. "That's saying they've done a risk assessment and they believe that the risk is not significant, and you can't really do much more than that."

Meanwhile, Standards Australia came up with a document known as MP77, based on the British Standard Institution's widely accepted definition of Y2K compliance. It states that "Year 2000 conformity shall mean that neither performance nor functionality is affected by dates prior to and after the year 2000. In particular:

- Rule 1 — No value for current date will cause any interruption in operation.
- Rule 2 — Date-based functionality must behave consistently for dates prior to, during and after the year 2000.
- Rule 3 — In all interfaces and data storage, the century in any date must be specified either explicitly or by unambiguous algorithms or inferencing rules.
- Rule 4 — Year 2000 must be recognised as a leap year in terms of handling both the 29th of February and day 366."

Finally, Philip Dodd helped Peter de Jager came up with some 50 'laws' of Y2K repair, partly for entertainment value and partly to help you reach the above definitions. They include the following (find them all at http://www.year2000.com/archive):

- The more you look, the more you find.
- The more you find, the more it costs.
- You will divert spending from other critical projects to this even more critical project.
- You can't know what you don't know.

"So don't act as if you do," warned Dodd. "A lot of people try to save face by saying 'It's totally under control, we've got that fixed'. But I've never seen anyone like that."■

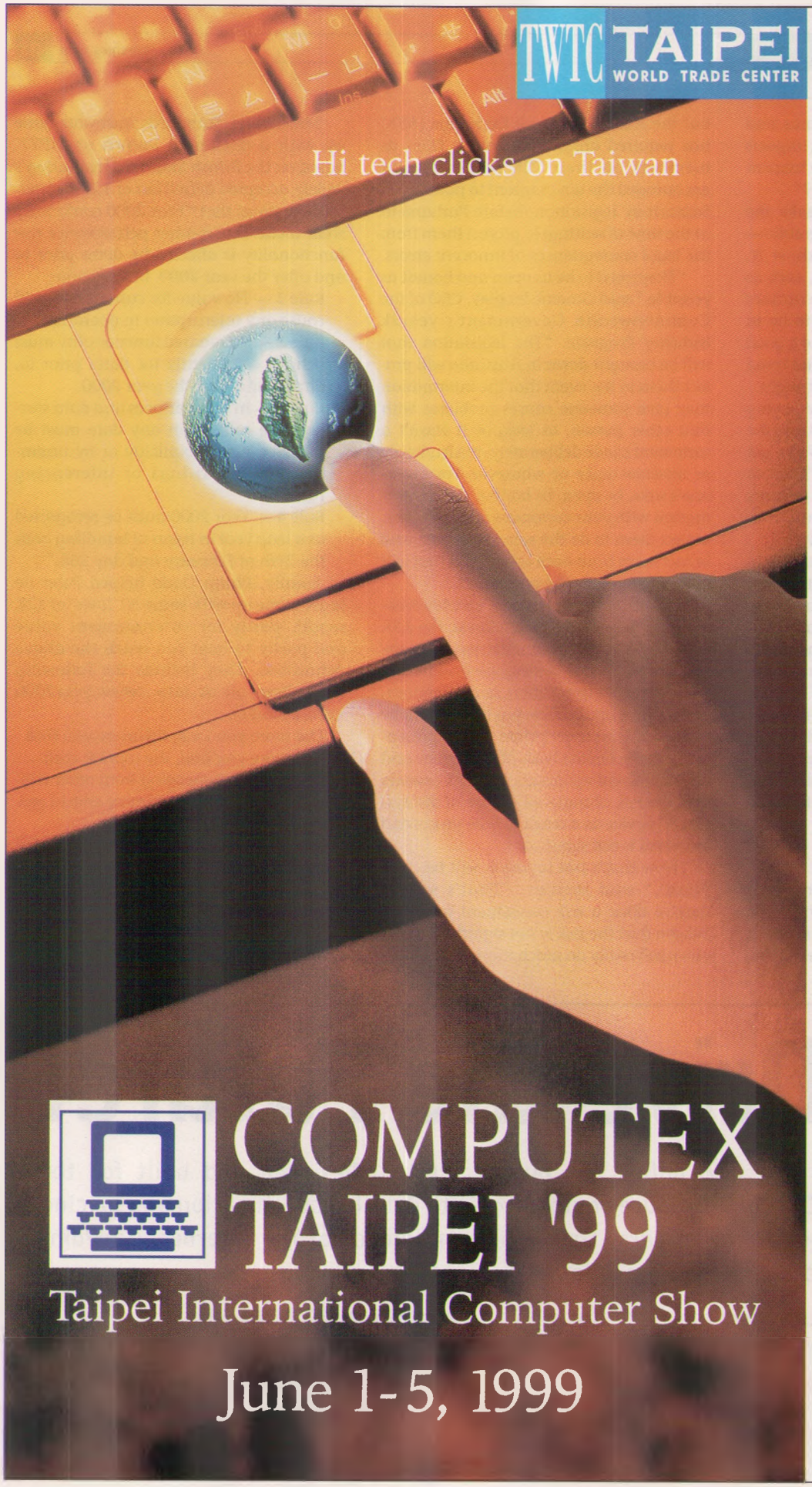
Test Drive the Future!

ninemsn CarPoint is a new online car buying service. Designed and built for the Australian market, CarPoint produces quick access to detailed specification and pricing information on a wide range of cars. Using the convenience of the Internet, CarPoint makes it easy to find the car you want faster.

To test drive the future visit the CarPoint web site at **carpoint.com.au**

ninemsn

ninemsn CarPoint carpoint.com.au



In 1997, Taiwan's IT industry produced an incredible US$35.784 billion worth of computer equipment. That makes Taiwan the third largest computer manufacturer in the world.

No wonder everyone in the IT business is clamoring to get a spot at COMPUTEX TAIPEI '99. There's simply no better place to eye the industry's latest offerings.

Don't miss this major industry event!

Organizers:

China External Trade Development Council (CETRA)

5, Hsin-yi Road, Sec. 5, Taipei, Taiwan 110, R.O.C.
Tel: 886-2-2725-1111 Fax: 886-2-2725-1314

http: //www.cetra.org.tw
http: //taipeitradeshows.cetra.org.tw
E-mail: computex@cetra.org.tw

Taipei Computer Association (TCA)

http://www.computex.com.tw

Sponsor:

Taipei World Trade Center

Venues:

Taipei World Trade Center Exhibition Hall

Taipei International Convention Center

For more information, please contact CETRA or its local office:

Far East Trade Service Inc, Sydney Branch Office, Australia
Tel: 61-2-92326999, Fax: 61-2-92327429

A look at the technology that drives the Pentium III, and what it delivers. **By Nathan Taylor**

Pentium III inside

At this stage, the Pentium III (formerly known as Katmai) is not for everyone. For existing applications it will run no faster than a Pentium II of the same clock speed. It does not even have the larger level 1 cache that sweetened the MMX deal and made us forget for a while that very few developers actually supported the new instructions.

The real winners with the new processor are game players. The Pentium III (and its 70 new instructions) has the potential to do a lot for 3D graphics. Better graphics, artificial intelligence and physics engines make 3D games much more exciting. It is also useful for other floating-point intensive applications like speech recognition and motion compensation in video. It all hinges on developer support though; like MMX, the new features of the processor can only be accessed with new instructions.

SSE

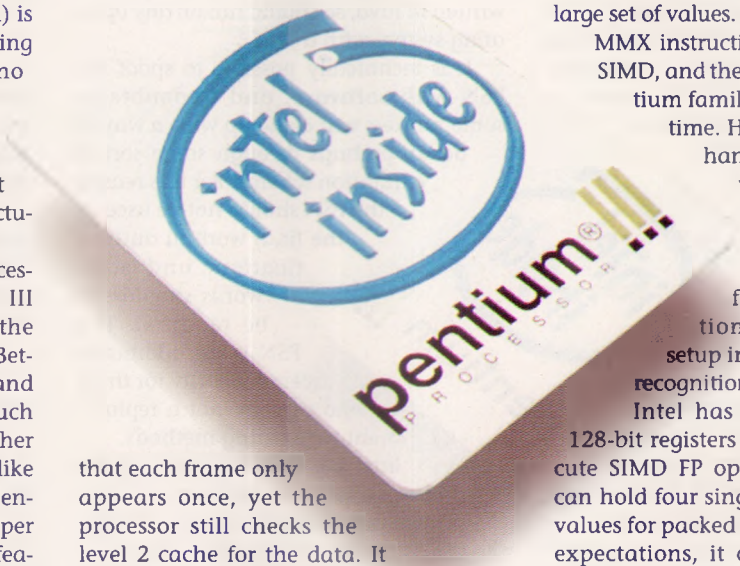
You may see it referred to in Intel releases and advertisements as Internet Streaming SIMD Extensions (Internet SSE), although 'Internet' is used more for marketing purposes. 'Streaming' is an allusion to the cache control instructions that some developers will find beneficial. 'SIMD', which stands for 'Single Instruction Multiple Data', refers to the gamut of new instructions enabling packed operations of floating point values.

Cache controller

One of the features of the new processor that is often overlooked is the large number of new instructions designed to give developers better control over the cache memory of the processor.

Perhaps designed as a stepping stone to Merced, in which pre-fetch and cache management will become an essential element in effective programming, the new instructions allow developers to load and unload information from the level 2 cache, and prevent delays associated with cache misses.

An example is video streaming, in which the cache is unnecessary, given that each frame only appears once, yet the processor still checks the level 2 cache for the data. It makes sense to tell the processor not to waste its time checking the cache, and read exclusively from memory.



Driver developers might also find the feature useful, as it allows greater control over the driver components that go into the cache — frequently called or performance-critical driver components can be loaded into the cache with certainty. Similarly, developers of small transaction-based engines could find the features a boon.

Single Instruction Multiple Data

The Single Instruction Multiple Data (SIMD) feature has certainly generated the most publicity for this product. We have covered SIMD in depth before (see *APC* October 1998, page 95), but briefly, it enables multiple (four, in the case of the Pentium III) calculations to be performed by a single instruction.

For instance, to do four multiples, the processor would normally have to perform operations like: multiply A and B, multiply C and D, multiply E and F then multiply G and H — four instructions executed sequentially. With SIMD, the processor can simply issue a single instruction to do a packed multiple of A, C, E and G by B, D, F and H — for a peak execution rate of four calculations per cycle, as opposed to one per cycle. It works best when the same set of instructions are to be performed repetitively on a large set of values.

MMX instructions are an example of SIMD, and these have been in the Pentium family of processors for some time. However, MMX can only handle integer values. SSE was designed with floating point (FP) values in mind, which makes it more useful for FP-intensive operations such as geometry setup in 3D graphics and voice recognition.

Intel has introduced eight new 128-bit registers and a new unit to execute SIMD FP operations. Each register can hold four single precision (32-bit) FP values for packed operations. Contrary to expectations, it cannot handle double precision values, leaving those operations to the FP unit. Integer operations are still left to MMX, which aliases its registers with the FP unit.

Overall, there aren't many more SIMD instructions than those supplied by the 3DNow instruction set that comes with AMD's K6-2 and later processors. They do pretty much the same things (despite Intel's efforts to teach us otherwise), enabling a peak of four FP calculations to be executed at the same time. 3DNow, however, has a number of gotchas about which operations can be executed in parallel, causing a few developer headaches.

The Pentium III also has the advantages of new registers (in the K6-2, 3DNow registers are still aliased with the FP unit, requiring clock-expensive mode changes) and the P6 core's traditionally better floating point engine, which will likely give it a serious performance boost overall when performing packed FP operations.

The processor also includes some new MMX instructions for integer values. Called 'new media instructions', these are mostly tweaks to the existing MMX instruction set to make it better match the algorithms used by developers. For instance, Photoshop currently uses MMX in a limited array of filters such as fades and blurs. According to Intel, the extensions to MMX will enable optimisation of a far greater range of functions with MMX.

The processor serial number

When Intel revealed that it was providing each processor with a unique serial number (the PSN, or Processor Serial Number), privacy groups were up in arms. They feared that a PSN could be used by unscrupulous individuals to track a computer user's behaviour. While such fears are actually founded more in paranoia than reality, Intel reacted to their concerns and provided the means to suppress the serial number.

To implement the PSN, Intel has extended the CPU_ID register, a special write-once register in the processor that is normally used simply to identify the processor model. The register has been expanded from 32 bits up to 96 bits, so the PSN is 64 bits long. The CPU_ID register can be easily read using a standard memory access command.



Is it insecure? In a sense. Any native code application can read the register without any trouble — but browsers have security features that prevent native code applications from being run over the Web without certification. Java applications, running in a Java Virtual Machine (JVM), cannot access the register, although ActiveX controls can, if you allow them to be run on your system (your browser should prompt you).

In reality, the security risk is no greater than letting any executable from an untrusted vendor run on your system — there is much more to worry about from a Trojan horse like Back Orifice than anything that reads your PSN. Indeed, there's very little that a company or group can do with the PSN once they have it — it does not grant them magical control over your system, nor does it allow them to track your movements on the Web or otherwise (despite rumours to the contrary). It simply tells them the PSN of the system you are using, which is rarely a secret anyway.

The PSN has some real benefits for both inventory management and authentication purposes. It can add an additional layer of security to Internet and intranet applications, for instance, requiring that access to certain sites be granted only from specific devices. Certain finance sites in the US, for instance, require that someone logging on know their username and password, as well as actually using the physical machine.

Intel has already developed a tamper-proof utility that Web sites can use to extract the PSN of client systems. Because it uses a little bit of native code, browsers running it should prompt the user before actually executing that code. Apart from the native code, the rest of the applet is written in Java, so should run on any operating system with a JVM.

It is technically possible to spoof the PSN with software, and undoubtedly some hackers will come up with a way to do so, perhaps through some sort of emulation scheme. For this reason the PSN should not be used as the final word in authentication, and passwords should still be required. The PSN is an additional layer of security for those who want it, not a replacement for existing methods.

Intel has also released a utility that suppresses the PSN and prevents anybody from reading it. Upon bootup, the PSN is switched on, but the utility runs during the load process of Windows (Windows is the only platform supported at this stage). Every power cycle sets the PSN back on, so the utility must be there constantly for the number to be suppressed. Once turned off, the PSN cannot be enabled without a reboot. Intel is also encouraging BIOS vendors to put a switch in the BIOS to turn off the PSN (obviating the need for the utility), and has publicly stated that it is recommending to all OEMs that Pentium III machines be shipped with the PSN suppressed.

Performance

Without applications available to test, it's difficult to tell how much the product's new features will affect performance. Intel has put together some canned demonstrations designed to show what the product can do, and the results are impressive, but real-world applications are another thing. The MMX demonstrations looked good too.

It has already scored some wins. Dragon Systems is claiming that training time on NaturallySpeaking has been reduced from 20 minutes to just five. Numerous game developers already have support for the product, and demonstrations of Quake III and Dark Reign II looked impressive.

In 3D games, geometry processing should become less burdensome. Because many computers will be rendering-limited (this is a function of the graphics card), it is likely that developers will focus on increasing the polygon count to create smoother models. Given that in most 3D engines, geometry processing is handled by proprietary routines, it will be mostly up to games developers to produce SSE-enhanced games. On the other hand, those that use OpenGL and DirectX retained mode APIs for geometry processing will see benefits only if the API has been optimised. In the case of the former, it is up to the graphics board vendor. Microsoft has already released DirectX 6.1, which has been optimised for SSE.

It's worth noting that few games developers actually use DirectX's retained mode, instead developing their own geometry engine and using DirectX immediate mode for hardware translation. So just because a game uses DirectX, it doesn't mean that it will make use of retained mode's SSE-enhanced geometry setup.

Display drivers can and have also been optimised for the instructions, although the benefits of doing so are limited. According to a 3Dfx representative, 3Dfx achieved an increase "as great as 20% and as little as 5%" by optimising their drivers and the rendering API Glide (which does not have a geometry engine).

When testing the Gateway system for this month's First Take section (see page 32), using DirectX 6.1, we also ran some tests with the non-optimised DirectX 6.0. The full results and breakdown can be seen in the review, and for the most part simply represent the performance boost offered by the increased clock speed. The interesting thing we found was the difference in the 3D WinBench 99 results.

3D WinBench 99 uses DirectX's retained mode, so it gives a good indication of the performance differential between optimised and non-optimised games. Tested with DirectX 6.0, the system only achieved a score of 508, some 221 points less than when tested with 6.1. This represents a performance increase of 43.5% when running with optimised routines.

Obviously this is not to be sniffed at, and game players could be well served by the enhancements. Business users, on the other hand, will find little that is compelling about the new instructions, except perhaps for the PSN. For this group of users, the increased clock speed of the processor will probably be the most important feature. In the end, of course, we'll all have processors with SSE, as Intel phases out its old core and introduces us all to the new one over the next few years.■

The key to high-availability enterprise networking is reliable power protection

The first step is protecting your server with APC Smart-UPS, PowerChute *plus* and UPS accessories



From Desktop to Data Centre... *APC has a complete range of UPSs, software and accessories to protect your entire enterprise.*



Although today's networking equipment is more reliable than ever, there is still one element of your enterprise that can't be counted on: power. A momentary surge in power, a sag or blackout can result in extensive data loss and system downtime. That's why it's essential to protect every aspect of your enterprise network with reliable power protection. APC power protection.

Since servers are the foundation of the enterprise, you should protect them first. APC Smart-UPS provide complete server protection against the hazards associated with power problems. In addition, APC's PowerChute *plus* software and UPS accessories help you manage your entire enterprise and enhance the reliability of your overall system.

Increase system reliability and uptime with award-winning APC Smart-UPS

Smart-UPS offer instantaneous battery back-up and full-time surge suppression to protect your sensitive hardware and data. User replaceable batteries can be swapped out without powering down equipment. SmartTrim and SmartBoost correct under and overvoltage conditions without battery drain. APC's CellGuard feature extends battery life and monitors battery performance.

Maintain network integrity and simplify network management with PowerChute *plus*

APC PowerChute *plus* software provides you with automatic, unattended shutdown in the event of a power failure. PowerChute *plus* displays real-time UPS diagnostics and environmental information so you can monitor the health of your UPS. PowerChute *plus* also tracks and logs power disturbances enabling you to diagnose power problems remotely, without the expense of on-site support.

Manage and monitor power easily, on-site or remotely

APC's award-winning accessories can be installed in Smart-UPS's SmartSlot Bay to provide support for multiple servers, hubs, switches and routers. Just add APC's PowerNet SNMP Adaptor to power, shut down or reboot connected equipment from anywhere on the network or remotely via modem. Other UPS accessories allow for out-of-band and environmental (temperature and humidity) monitoring.

Australia-wide customer support

APC Australia provides Toll-Free technical support, so you can join over 8 million APC customers world wide, who already rely on APC's products, service and support programs.

FREE Enterprise Protection Kit!



Just mail or fax this coupon to APC to receive your FREE Non-Stop Networking Enterprise Protection Kit.

☐ **YES!** **Send my FREE Non-Stop Networking Enterprise Protection Kit!**

Name: _____

Job Title: _____

Company: _____

Address: _____

City/Town: _____

State: _____ Postal Code: _____

Phone: _____ Fax: _____

How many servers do you want to protect? _____

How many PCs do you want to protect? _____

☐ Reseller/VAR ☐ End User Corporate ☐ End User SOHO

APC®

Toll Free: 1800 652 725
Fax: (02) 9955 2844
http://www.apcc.com/australia

APC-N26

Level 27 Northpoint, 100 Miller Street, North Sydney, NSW 2060 Australia • **E-MAIL:** anzinfo@apcc.com • **TEL:** (02) 9955 9366 • **FAX:** (02) 9955 2844

APC has won more awards for reliability than all other UPS vendors combined.

The World's most reliable power protection

©1998 APC. All Trademarks are the property of their owners. EE4ABEF-ANZ *1997, InfoWeek US.

COUNTDOWN 98

The Editor's Choice
- Beyond -

"Not only was it the fasteest system overall, but it is well rounded and would cope well in both a business and a home environment. so get one while they last."

Editor - PC Magazine, October 1998

"In some of our past labs we've needed to go to the photo to see who has crossed the line first, but this month we have a very clear winner. The Beyond SuperO prosessinal PII impressed the entire team when we set it up due to the high quality of all its components Unsurprisingly, the Beyond also tore through our Benchmark tests, producing a score that not only blew away the opposition but rivalled that of some PII/400 system Incredibly fast and well featured with massive upgrade potential."

Editor - PC@UTHORITY, October 1998

"As with previous systems offered by Beyond Computers we found its Ultimate Games entrant a great performer. In fact, the performance of this system was so good it took top honours in the speed stakes and second place in the Bang for Buck calculations. This was all that was needed to award it the Editor's Choice for this review."

Editor - PC Magazine, December 1998

SuperO Professional

SuperO 250W Midi Tower ATX model
3.2GB Quantum Ultra ATA HDD
8MB AGP 3D Video Intel i740 Chipset
15" NEC V500 MultiSync Digital Monitor
104 Ergonomic Keyboard PS/2
PS/2 Mouse Logitech
32X IDE CD ROM & 3.5" Floppy
Microsoft Windows 98 and IE 4.0

$1430

Intel Celeron A 333 CPU
32MB SDRAM PC100

Intel Pentium II 350 CPU
64MB SDRAM PC100 **$1850**

SuperO Speedo

SuperO 250W Midi Tower ATX model
8MB AGP Video Matrox Milliennium G200
15" Sony Trinitron Digital Monitor 0.25
5.1GB Quantum Ultra ATA HDD
104 Ergonomic Keyboard PS/2
PS/2 Mouse Logitech
32X IDE CD ROM & 3.5" Floppy
Microsoft Windows 98 and IE 4.0
Anti Virus Protection

Intel Celeron A 366MHz CPU
32MB SDRAM PC100 **$1920**

Intel Pentium II 400MHz CPU
64MB SDRAM PC100 **$2530**

SuperO Velocity

SuperO 250W Midi Tower ATX model
16MB AGP Video Leadtek WinFast S320
(Based on Riva 128TNT with TV/Out)
17" LG Digital Monitor 80Hz
5.1GB Quantum Ultra ATA HDD
PCI 128 Creative Sound Blaster Audio
120W HiFi Speakers (AC Power)
104 Ergonomic Keyboard PS/2
PS/2 Mouse Logitech
32X IDE CD ROM & 3.5" Floppy
Microsoft Windows 98 and IE 4.0

$2190

Intel Celeron A 400MHz CPU
32MB SDRAM PC100

Intel Pentium II 450MHz CPU
64MB SDRAM PC100 **$3100**



HOT SPECIAL

Upgrade to Sony 17" ES Trinitron Monitor with *Free* (rrp $300) Sony 3D SubWoofer speakers**

N1961

Quality Endorsed Company

Call us today. For custom-configuration and on line ordering 24 hours a day, please visit our website:
www.beyondcomputers.com.au

Call: 02 9417 3688
03 9646 4388
07 3511 7288

Beyond

*All Beyond computers have been tested and certified for Year 2000 compliance. As one of the top Australian computer manufacturers, Beyond is a quality endorsed company under ISO 9002. Delivery is in addition to the advertised prices shown. Certain configuration can not be downgraded. All systems have two years parts and five years labor return to base warranty with optional three years on site. All logos and trademarks are the properties of their registered owners. E&OE.

** Promotion ends April 30, 1999. Offer limited to system purchases only.

Budget scanner prices are falling. APC scans the options.

By Josh Mehlman

Get the picture?

Whether you're putting pictures on a Web site, assignment or presentation, or just storing photos and documents on your computer, a scanner is becoming another essential purchase for the SOHO computer user. A year ago most budget scanners cost about $300 to $400. Thanks to increased demand and a new technology called CIS, prices keep dropping — scanners now start at just over $100.



Too many numbers

When buying a scanner you're confronted with a lot of numbers and specs. The first figure vendors always mention is interpolated resolution. Vendors may claim a scanner has resolution of up to 9,600dpi, but this unrealistically high figure is actually achieved through software interpolation. This technique makes scanned images larger by adding spaces between the image's pixels and then filling them in with more pixels. This makes the files much larger but the image is no more detailed than a smaller, low-resolution scan. The maximum optical resolution is the highest level of detail a scanner is capable of, so this is the figure you should focus on. Optical resolution for budget scanners is usually somewhere between 300 and 1,200dpi.

But what difference does resolution make? For pictures that will be used on a Web page or printed on an inkjet printer, an optical resolution of 300dpi is nearly always adequate. Images on a monitor appear at a much lower resolution (around 72dpi) and most consumer-level inkjet printers can only print up to about 360dpi. However, if you want to print your images larger than the originals, you'll need a higher optical resolution scanner to prevent the image from looking blocky or fuzzy.

Another figure vendors throw around is colour depth. This refers to the number of colours a scanner can distinguish. In theory, a 30-bit colour scanner can distinguish over a billion colours, while a 36-bit scanner manages close to 70 billion colours. However, our eyes cannot distinguish anywhere near a billion colours, so any improvement over 30-bit colour seems completely academic. Even so, our tests showed that the scanners with the best colour matching had 36-bit colour depth.

Which interface?

Now that USB has become popular, there are even more options to plug in your scanner. The general rule is that it's a trade-off between speed and price. SCSI is the fastest but most expensive, USB is cheaper but not as fast, while the parallel port is the slowest and the least expensive. We found that on a fast PC, such as the one we used for testing, parallel can sometimes be faster than USB. Most PCs can communicate through the parallel port in EPP (enhanced parallel port) mode, so if you're planning to use a parallel port scanner, we recommend changing your system BIOS to use EPP mode, as this can double the speed of the scanner.

CCD or CIS?

In the past year a new scanner technology known as contact image sensor (CIS) has appeared. Flatbed scanners have traditionally used a light-sensitive semiconductor called a charge-coupled device (CCD), which is the same sensor used in many video cameras. The light from the cold cathode lamp reflects off the image, and is focused using a series of mirrors and lenses onto the CCD element. This has kept scanners fairly expensive, because the complex optical systems required are relatively expensive to produce.

CIS is much simpler. The light source is a series of red, green and blue LEDs (light-emitting diodes), and this light reflects off the scanned image into a row of sensor elements which are directly next to the light source and only a few millimetres below the image. This eliminates the need for complex optics, as the light source and sensors can be located next to each other in the scanner arm. As a result, CIS scanners can be manufactured more cheaply than CCD scanners. CIS scanners also consume less power and can be much smaller than CCD scanners. However, CIS is a new technology and still has a way to go before it can match CCD in image and colour quality.

For this review of budget scanners, we accepted any flatbed scanners that sold for under $350. One significant vendor in this market, Acer, declined to submit a scanner from its range for us to review.

SnapScan 1212u

AGFA

When we reviewed the SnapScan 1212u as part of a USB roundup (see *APC* March, page 119), we were impressed with its speed and the high-quality images it produced. After comparing it to the other budget scanners in this review, we were even more impressed.

The SnapScan 1212u we reviewed could manage 1,200 by 600dpi resolution and 36-bit colour. It breezed through a 300dpi scan in 32 seconds, and a 600dpi scan in 60 seconds flat, including the time taken to recalibrate before each scan. Also, its picture quality was the best of the bunch. The pictures were sharp and detailed, and colour matching was good across the spectrum.



The SnapScan comes with two TWAIN drivers: FotoSnap, for less-experienced users, offers little in the way of control, but allows you to scan quickly and easily; and FotoLook, for more professional scanners, allows high-level control over the scanning process. (A TWAIN driver acts as an interface between an application and scanner hardware, allowing images to be scanned directly into an application.)

Distributor	Agfa
Phone	(03) 9264 7711
Online	http://www.agfahome.com/
Price	$289 (USB) or $299 in iMac colouring
In short	Excellent quality and speed at a good price.

Viewstation 1236P

ARTEC

The Artec 1236P we reviewed was a CIS scanner, capable of 1,200 by 600 resolution and 36-bit colour. This made it comparable in specifications to the Canon FB620P, but it is close to half the price.

However, the Canon scanner does have certain advantages to justify the extra bucks. The Viewstation 1236P's TWAIN driver was very primitive-looking, and our reviewers found it rather unfriendly. It is not short on features, but finding and using them was not always easy. It would be more suited to experienced scanner users; others would probably have to rely on the settings the driver chose automatically, which were not always ideal.



Scanning speed was above average, but picture quality was well below average. Scanned images were not very sharp and tended to lose quite a bit of detail. The colours were flat overall, and dark areas caused problems.

Taking the price into account, the 1236P is probably a fair compromise, but we think image quality and ease of use are worth paying a little extra for.

Distributor	Hallmark
Phone	(03) 9540 8555
Online	http://www.hallmark .com.au/
Price	$155
In short	The picture quality isn't great, but the price is right if your budget is tight.

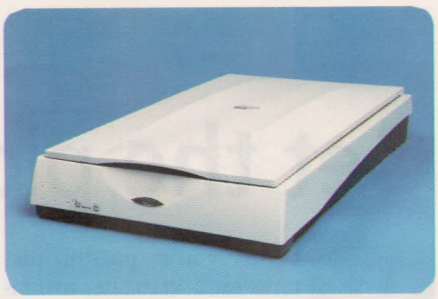
Viewstation AM12E Plus

ARTEC

Artec's AM12E Plus appeared to be exactly the same box as the KTX 9600AP, but it had a different sticker on the top. The bundled software was almost exactly the same, and there's only one dollar difference in price. Its CCD scanning element was capable of 1,200 by 600dpi at 30-bit colour.

An interesting difference between the Artec and the KTX was that the Artec scanner came with a "most updated driver" floppy disk, which contains a more recent version of the TWAIN drivers than the one on the software CD-ROM. Although there were no significant performance increases over the KTX (which had older drivers), several of the image controls were greatly improved.

It scanned a 300dpi image very quickly, but its speed at 600dpi was average. The picture quality was not entirely impressive — it lacked sharpness and the colours looked a little flat. The one unforgivable sin of the AM12E we reviewed was that the top edge



was not straight, so pictures tended to be skewed when lined up against it. At just under $200, one can't expect miracles, but there is definitely room for improvement.

Distributor	Hallmark
Phone	(03) 9540 8555
Online	http://www.hallmark .com.au/
Price	$198
In short	A budget high-resolution scanner, but picture quality could be better.

Viewstation AS6E

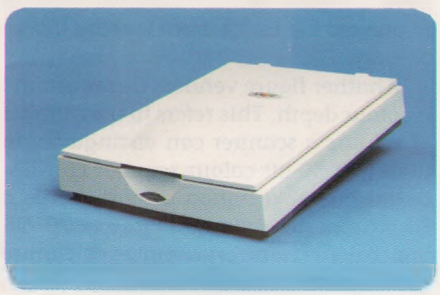
ARTEC

By far the cheapest scanner in this review, the AS6E retails at just $110. For this price, you get a CIS scanner capable of 600 by 300dpi resolution and 30-bit colour, and a one-year warranty.

The AS6E comes with the same software as the Artec 1236P, and it looks rather primitive and not all that user-friendly — though it is quite powerful. The software has one advantage: it intelligently selects the area to be scanned once it has performed a prescan, and usually gets it right. The scanner was also very fast, scanning a 300dpi photo in 21 seconds.

As you might expect for such an inexpensive scanner, there were compromises in image quality. Pictures were not sharp, probably owing to the poor alignment of the scanning elements that our test pattern clearly showed. Colour matching was poor and the colour and tone detail was also low.

Distributor	Hallmark
Phone	(03) 9540 8555



THE REAL POWER COMES IN KNOWING YOU GOT A GREAT DEAL.



Dell Dimension® V series

DELL DIMENSION® V400
INTEL® PENTIUM® II PROCESSOR 400MHz

- Mini Tower Chassis
- 512KB Single Bank Pipeline Burst Cache
- 128MB 100MHz SDRAM
- 8.4GB Ultra ATA Hard Drive
- 3.5" 1.44MB Diskette Drive
- Integrated Intel® 10/100 PCI Ethernet Controller
- ATI® 8MB 3D 2X AGP Integrated Graphics
- 32X Variable EIDE CD-ROM Drive
- 17" Colour Monitor (15.9" v.i.s.)
- Microsoft® IntelliMouse®
- Microsoft® Windows® 98
- NEW Microsoft® OEM Works Suite 99
- McAfee Virus Scan
- 3 Year Limited Warranty
- Free Lifetime Telephone Technical Support

$2,899* plus delivery

or $24 per week**

Upgrade options include:
- Iomega Zip 100MB Internal Drive $146
- 12.9GB Ultra ATA Hard Drive $136
- Call for a complete range of upgrades

DELL DIMENSION® V400c
INTEL® CELERON™ PROCESSOR 400MHz

- Mini Tower Chassis
- **Intel® 440BX AGPset**
- 128KB Single Bank Pipeline Burst Cache
- 64MB 100MHz SDRAM
- 8.4GB Ultra ATA Hard Drive
- 3.5" 1.44MB Diskette Drive
- ATI® 8MB 3D 2X AGP Integrated Graphics
- Yamaha 64 Voice Wavetable Integrated Sound
- 32X Variable EIDE CD-ROM Drive
- Harman Kardon HK195 Speakers
- 15" Colour Monitor (13.7" v.i.s.)
- Microsoft® IntelliMouse™
- Microsoft® Windows® 98
- NEW Microsoft® OEM Works Suite 99
- McAfee Virus Scan
- 3Com® USR 56K Capable V.90 PCI WinModem
- 3 Year Limited Warranty
- Free Lifetime Telephone Technical Support

$2,239* plus delivery

or $19 per week**

Upgrade options include:
- 128MB 100MHz SDRAM $194
- Altec Lansing ACS-495 Full Dolby® Surround Sound Speakers with Subwoofer $169
- Call for a complete range of upgrades

DELL DIMENSION® V400c
INTEL® CELERON™ PROCESSOR 400MHz

- Mini Tower Chassis
- **Intel® 440BX AGPset**
- 128KB Single Bank Pipeline Burst Cache
- 64MB 100MHz SDRAM
- 8.4GB Ultra ATA Hard Drive
- 3.5" 1.44MB Diskette Drive
- Integrated Intel® 10/100 PCI Ethernet Controller
- ATI® 8MB 3D 2X AGP Integrated Graphics
- 32X Variable EIDE CD-ROM Drive
- 15" Colour Monitor (13.7" v.i.s.)
- Microsoft® IntelliMouse™
- Microsoft® Windows® 98
- NEW Microsoft® OEM Works Suite 99
- McAfee Virus Scan
- 3 Year Limited Warranty
- Free Lifetime Telephone Technical Support

$2,129* plus delivery

or $18 per week**

Upgrade options include:
- 128MB 100MHz SDRAM $194
- Iomega Zip 100MB Internal Drive $146
- Call for a complete range of upgrades

The Dell Dimension® V series offers the perfect combination of power, performance and value. From just $2,129* you can pick up a PC with a powerful Intel® Celeron™ processor 400MHz, 8.4GB hard drive and 64MB 100MHz SDRAM. That's a great deal now, and thanks to something which may not mean a lot to many – the Intel® 440BX AGPset – it's a great deal for the future too. Why? Because this little chip means your Dimension desktop can easily upgrade to an Intel® Pentium® II processor. So for a short term price you've got a PC with a potentially long life span. To experience the Dell Dimension® V series for yourself, visit www.dell.com.au or call 1300 303 195. And enjoy the power of a thicker wallet.

intel inside
celeron™
PROCESSOR

Call Dell Mon to Fri 8am-8pm, Sat 9am-3pm (EST), or visit our WebStore

Visit our 24 hour WebStore
for custom-configuration and on-line ordering

www.dell.com.au

DELL

BUY DELL **1300 303 195**

Please quote this key code: 7007328

DELL'S NORMAL TERMS AND CONDITIONS APPLY AND ARE AVAILABLE ON REQUEST. PLEASE CALL OR REQUEST ON-LINE.
***Prices and specifications subject to change without notice. All prices shown include tax but delivery is additional.** Certain configurations cannot be changed. Dell, the Dell logo, and Dell Dimension, are registered trademarks of Dell Computer Corporation. The Intel Inside logo and Pentium are registered trademarks and Celeron is a trademark of Intel Corporation. Microsoft and Windows are registered trademarks of Microsoft Corporation. Other trademarks and trade names may be used in this document to refer to either the entities claiming marks and names or their products. Dell disclaims proprietary interest in the marks and the names of others. All efforts will be made to check for errors in typography and photography; however, inadvertent errors may occur for which Dell may not be responsible. The colour of the Dell system shown in the picture is for advertising purposes only. Photographed with options. Lifetime telephone technical support refers to lifetime of the system. ** Dell can arrange for rentals based on a 36 month term excluding stamp duty and FID which varies from state to state. Rentals and operating leases are available only to approved companies and business customers. Figures shown are indicative and may vary with interest rates. Copyright 1999 Dell Computer Corporation. All Rights reserved. DELD0104/APC/FP

Online	http://www.hallmark.com.au/
Price	$110
In short	Cheap, but with picture quality to match.

CanoScan FB320P

CANON

Canon's FB320P CIS scanner is much smaller than the CCD scanners we reviewed; it has a sleek design, a small footprint and is very light. The FB320P is an affordable option for home users interested in adding pictures to their Web sites. It's capable of 300dpi resolution and 30-bit colour. It was the slowest of the scanners we reviewed, taking 90 seconds to scan a photo at 300dpi.

It would be sufficient to scan photos for Web sites, but it's still not quite up to scratch if you want to print them. This is partially due to the 300dpi resolution limitation; although you could print out photos the same size as the original with most home colour printers, any attempt to enlarge the photos would make them fuzzy or blocky.



The CanoScan's scanned images lacked the sharpness and detail of the more expensive scanners. It had trouble with dark areas and complex shading, tending to make those areas all the same colour. However, the colours looked warm and vibrant, and would stand out well on a Web site.

Distributor	Canon
Phone	(02) 9805 2000
Online	http://www.canon.com.au/
Price	$199
In short	Good for the Web, not for print.

CanoScan FB620P

CANON

Like its sibling the FB320P, Canon's FB620P took advantage of its CIS technology to fit into a small, lightweight, well-designed package. The FB620P had the image quality to challenge some of the CCD scanners we reviewed, but its snail-paced scans at high resolution were unimpressive.

The FB620P achieved 600 by 600dpi resolution and 30-bit colour. It did so in reasonable style, as well. Scanned photos were much sharper and more detailed than those from the FB320P, and were comparable to some of the CCD scanners. The colours were more detailed than those in the FB320P's pictures, but were still lacking some precision in darker areas. As with the FB320P, the colours were rather warm, which is only a problem if you care about accurate colour matching; our reviewers actually liked Canon's colour balance.

The CanoCraft CS-P scanner driver was very user-friendly. As well as the full range of advanced image controls, there is a simple mode for less advanced users. Rather than fiddling with sliders and numbers, you have options such as 'lighten midtones', and it shows previews of how the picture will look with the midtones lightened.



Distributor	Canon
Phone	(02) 9805 2000
Online	http://www.canon.com.au/
Price	$299
In short	Not a bad option if you're very patient.

ScanJet 4100C

HEWLETT-PACKARD

Hewlett-Packard's ScanJet 4100C CCD scanner will set you back just over $300, but you will be rewarded with 36-bit colour. Its optical resolution was only 300 by 300dpi, comparable with the much cheaper Canon CanoScan FB320P. It connected through the USB port, although this did not offer any significant advantages over the parallel port printers on our test system. It scanned a 300dpi photo in 27 seconds, which was fairly fast.



The Hewlett-Packard Precision Scan LT TWAIN driver was the most advanced and user-friendly of all the scanners in this review, but operated on the principle that it knew what was best, and the less you messed with things the better. It is clearly aimed at less experienced users, and will serve them well. It pre-scans images at 150dpi, which means if you want to scan images for Web sites or screen presentations, you just need to select the area you want and it's ready to use.

The picture was sharp and the colours fairly accurate, but tone and colour were a little flat. Overall, the scanned images were among the best in this review.

Distributor	Hewlett-Packard
Phone	1800 339 862
Online	http://www.hp.com.au/
Price	$307
In short	Good picture quality and very easy for first-time users.

9600AP

KTX

There was almost no difference between the KTX 9600AP and the Artec AM12E Plus other than the sticker on the lid. It has the same vaguely iMac-like colouring, the same specifications and the same soft-

Editor's Choice apcmag

EDITOR'S CHOICE

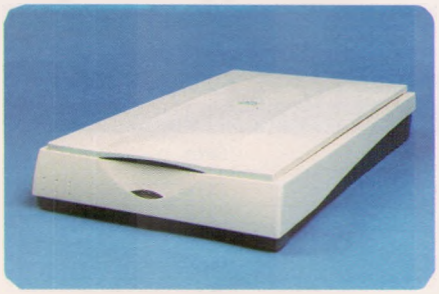
Agfa SnapScan 1212u

HIGHLY COMMENDED

Hewlett-Packard ScanJet 4100C

The Agfa SnapScan 1212u impressed us with its speed and great picture quality. It can scan up to 1,200dpi, has 36-bit colour and comes at a competitive price. We also appreciated the two TWAIN drivers for users with different experience levels.

Hewlett-Packard's ScanJet 4100C also wowed us with its TWAIN driver, which is perfect for inexperienced scanner users. It is unfortunate that it can only manage 300dpi optical resolution, because its picture quality is very good.



ware, although the KTX had less recent drivers than the Artec. New drivers can be downloaded from the distributor's Web site. Nonetheless, the interface was fairly good, although the information it gave was a little on the lean side for less-experienced users, who may be a little intimidated by tone curves and other more professional tools.

Like the Artec, it was very fast at scanning 300dpi images and average at 600dpi. And like the Artec, the pictures were a little flat in colour and tone, and were not all that sharp.

Distributor	Edge
Phone	(02) 9353 9200
Online	http://www.edge.net.au/
Price	$199
In short	One of the better scanners around for this price.

Astra 1220U

UMAX

This product has the specifications to match the best of them: USB support, 1,200 by 600dpi optical resolution, CCD scanning element and support for up to 36-bit colour.The scan quality was good, although not quite up there with the Agfa scanner, as the scans lost some colour definition. The colours were a little too saturated on both picture scans, although it maintained clean lines on the scan of the test pattern.

The bundled software was good, though unspectacular. The TWAIN driver was designed with inexperienced users in mind, but realistically, the 'advanced' view is easier to use than the beginners view.

The 1220 is available in three variations — for parallel port, SCSI and USB. We looked at the latter and its speed was impressive — it was one of the fastest in the review. All round, the Astra 1220U is a good scanner, but one of the most expensive.



Distributor	Computer Enterprises
Phone	(02) 9807 5222
Online	http://www.cea.net.au/
Price	$349 (USB version)
In short	A fine scanner, although not the best we looked at.

Astra 610P

UMAX

The Astra 610P was one of the cheapest CCD scanners in this review, at only $169 for the parallel port version (a SCSI version, the 610S, is available for $279 including a SCSI card). It is capable of a maximum 600 by 300dpi resolution at 30-bit colour depth. On our test system, the 610P achieved blistering speeds, powering through a 300dpi scan in 20 seconds, while a 600dpi scan took only 44 seconds. It should be kept in mind that this time was for a 600 by 300dpi scan, not 600 by 600dpi, as with most of the other scanners.



The bundled software, including the TWAIN driver VistaScan, were the same as the 1220U. VistaScan allowed a good range of controls over the picture, but its automatic suggestions were far from perfect. Overall picture quality was good, the picture was sharp and showed up fine details fairly well. The Astra handled dark areas and highlights well, but the colours lacked subtlety.

Distributor	Computer Enterprises
Phone	(02) 9807 5222
Online	http://www.cea.net.au/
Price	$169
In short	Fast, great price, but picture quality isn't the best.

How we tested

We tested each scanner by connecting it to a Dell Dimension XPS-R system with a 450MHz Pentium II processor, running Windows 98. The parallel port of the PC was set to EPP mode. We then performed the following tests:



- Scanning two photos at 300dpi and averaging the time;
- Scanning the same two photos at 600dpi and averaging the time;
- Scanning a test pattern at the maximum optical resolution;
- Scanning two documents and converting the image into text using OCR software when the software was provided.

The first photo was a desert cliff landscape that had a great deal of subtle variation in colour, many fine details, and some very bright and dark areas. We were particularly interested to see how well the scanners could bring out the detail in the shadowed areas. The second photo was a portrait, which we used to see how the scanner handled flesh tones and tricky areas, such as the subject's hair and clothing. We also compared the scanned images with the original photos and with photos scanned on a professional-level scanner (in this case a Sharp JX-330P) to see how well it matched the colours. We checked each scanner driver's automatic suggestions of brightness, contrast, colour balance and tone against our reviewers' selections.



The test pattern consisted of some fine black vertical and horizontal lines. This test showed how well the scanner dealt with finely spaced lines, which was a good indicator of how the scanner would handle fine details. In addition, fine lines indicated how well the optical elements in the scanner were aligned. The alignment of these elements contributes to the overall sharpness of the images.

Finally, in the OCR test, we scanned a printed page that had text of several different fonts and sizes. We scanned it again after sending it through a fax machine, which reduced the resolution, added noise (small marks) and skewed the text slightly, all of which would make it harder for an OCR program to recognise the text.

Budget scanners: Specifications

	Agfa SnapScan 1212u	Artec Viewstation 1236P	Artec Viewstation AM12E Plus	Artec Viewstation AS6E	Canon CanoScan FB320P
Distributor	Agfa	Hallmark	Hallmark	Hallmark	Canon
Phone	(03) 9264 7711	(03) 9540 8555	(03) 9540 8555	(03) 9540 8555	(02) 9805 2000
Online	http://www.agfahome.com/	http://www.hallmark.com.au/	http://www.hallmark.com.au/	http://www.hallmark.com.au/	http://www.canon.com.au/
Parallel port version	SnapScan 1212p	1236P	AM12E Plus	AS6E	FB320P
Price	$269	$155	$198	$110	$199
USB version	SnapScan 1212u	N/A	N/A	N/A	N/A
Price	$289	N/A	N/A	N/A	N/A
SCSI version	N/A	N/A	N/A	N/A	N/A
Price	N/A	N/A	N/A	N/A	N/A
Maximum optical resolution (dpi)	1,200 by 600	1,200 by 600	1,200 by 600	600 by 300	300 by 300
Maximum colour depth	36-bit	36-bit	30-bit	30-bit	30-bit
Scanning element	CCD	CIS	CCD	CIS	CIS
Light source	Cold cathode	LED	Cold cathode	LED	LED
Scanning area (mm)	216 by 297	216 by 297	210 by 297	210 by 297	216 by 297
Bundled software (excluding TWAIN driver)	Ulead Photo Express, Caere OmniPage LE, PaperPort	IXLA Photo Scanner Suite, Xerox TextBridge	IXLA Photo Scanner Suite, Xerox TextBridge	IXLA Photo Scanner Suite, Xerox TextBridge	Photo Express, Caere OmniPage LE
Warranty	1 year	1 year	1 year	1 year	1 year, upgradable
Interface tested	USB	Parallel	Parallel	Parallel	Parallel
Time of 300dpi scan (min:sec)	0:32	0:27	0:21	0:21	1:26
Time of 600dpi scan (min:sec)	1:00	1:01	1:20	0:37*	1:34*

	Canon CanoScan FB620P	Hewlett-Packard ScanJet 4100C	KTX 9600AP	Umax Astra 1220U	Umax Astra 610P
Distributor	Canon	Hewlett-Packard	Edge	Computer Enterprises	Computer Enterprises
Phone	(02) 9805 2000	1800 339 862	(02) 9353 9200	(02) 9807 5222	(02) 9807 5222
Online	http://www.canon.com.au/	http://www.hp.com/	http://www.edge.net.au/	http://www.cea.net.au/	http://www.cea.net.au/
Parallel port version	FB620P	N/A	9600AP	1220P	610P
Price	$299	N/A	$199	$279	$169
USB version	N/A	ScanJet 4100C	N/A	1220U	N/A
Price	N/A	$307	N/A	$349	N/A
SCSI version	N/A	N/A	N/A	1220S	610S
Price	N/A	N/A	N/A	$499 including SCSI card	$279 including SCSI card
Maximum optical resolution (dpi)	600 by 600	300 by 300	1,200 by 600	1,200 by 600	600 by 300
Maximum colour depth	30-bit	36-bit	30-bit	36-bit	30-bit
Scanning element	CIS	CCD	CCD	CCD	CCD
Light source	LED	Cold cathode	Cold cathode	Cold cathode	Cold cathode
Scanning area (mm)	216 by 297	216 by 297	210 by 297	216 by 297	216 by 297
Bundled software	Photo Express, Caere OmniPage LE	Hewlett-Packard Precision Scan LT, Adobe PhotoDeluxe	TextBridge Classic, IXLA Photo Scanner Suite	Adobe PhotoDeluxe, Presto PageManager and PhotoAlbum, Caere OmniPage LE	Adobe PhotoDeluxe, PageManager, PhotoAlbum, Caere OmniPage LE
Warranty	1 year, upgradable	1 year	1 year	1 year	1 year
Interface tested	Parallel	USB	Parallel	USB	Parallel
Time of 300dpi scan (min:sec)	1:15	0:27	0:14	0:35	0:20
Time of 600dpi scan (min:sec)	4:56	1:38*	1:51	1:20	0:44*

*Scanner was operating above its maximum optical resolution.
1. All products used in these tests are shipping versions available to the public at the time of publication unless otherwise stated.
2. *APC* takes no responsibility for inaccurate specification information provided by vendors/distributors.

You may not need a big monitor, but we both know you want one. **By Darren Ellis**

On the big screen

Aren't huge screens great? Whether it is a monitor or a television, bigger is better. For the purpose of these reviews we looked at the biggest CRT (cathode ray tube) screens we could find — 19in and 21in behemoths. We then placed these monitors through a gruelling, eye-straining test to see just how well they stacked up against one another.

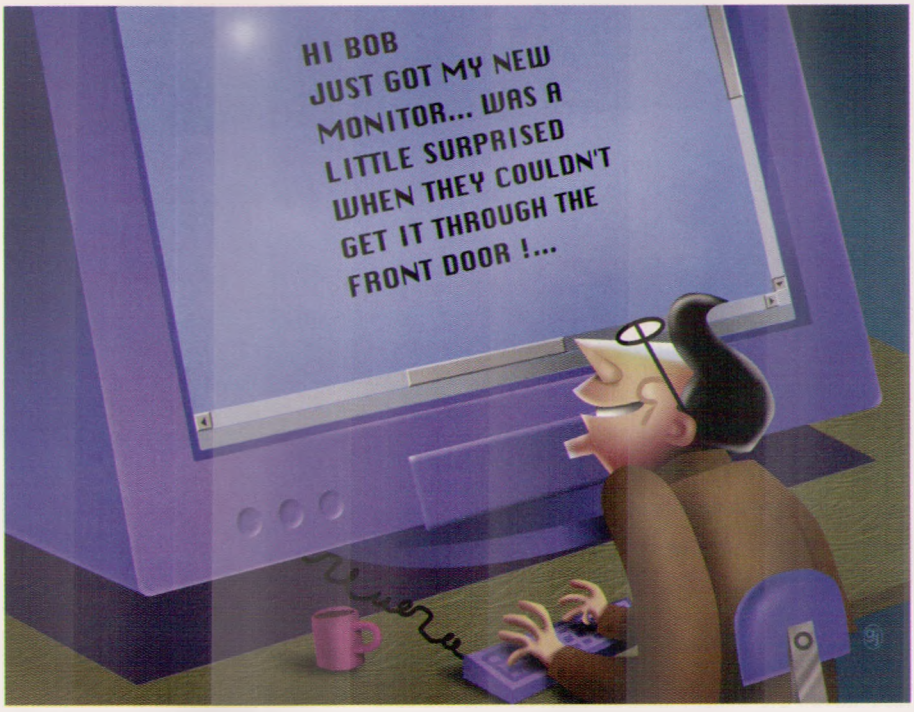
It's strange, though, that in a world where the prices of PCs and their components are constantly dropping, the prices of monitors have remained somewhat static. This is simply because manufacturing costs are holding relatively steady. What you paid for a 21in monitor a year ago is almost the same as what you would pay now. The good news is that there are now more big screens on the market.

What should you be looking for if you want to purchase one of these beauties? It depends on your needs — will you use it generally or for high-end/professional work? Usually a monitor that supports a high maximum resolution and refresh rate is ideal for the graphics/professional user, but it will cost more. Most of the monitors we looked at supported up to 1,600 by 1,200 at 75Hz, which is adequate for most graphics work, but far more than is needed for general use.

There are two main types of CRT monitors — those that use aperture grille technology and those that use shadow mask technology. Each type has its pros and cons. Invar shadow mask CRTs are cheaper, while aperture grille monitors are more expensive, but have a clearer picture.

Monitors that use the Invar shadow mask beam their picture through a metal perforated plate. The plate is heat resistant and it lets the picture filter through in very fine detail. The screen image comprises coloured dots similar to a television.

An aperture grille monitor displays its picture differently; the image is composed of vertical lines of light. The aperture grille consists of tightly strung vertical wires that focus the electrons in lines of correctly coloured phosphors. Usually the image on an aperture grille monitor is more uniform than a shadow mask monitor. Many people think that monitors that use this technology (developed by Sony and used in Trinitron monitors) have a cleaner, better defined picture, but it also has its detractors. At times two lines are visible at approximately one-third and two-thirds of the way up the screen. These are the horizontal cables that hold the vertical cables taut.



During the course of our testing, something curious happened. When we switched on the NEC MultiSync P1250+, it became immediately evident that the top of the screen angled down slightly in the corners. This is an unusual problem. Normally, it is the sides of the display that become distorted and need to be twiddled during calibration. We could find nothing in the OSD that could solve this problem and consulted the manual.

"If possible, position the front of the monitor facing east." We did just that, and to our surprise, the picture flickered and the top edge straightened. We realise that the Earth's magnetic fields can have all sorts of effects on electronic equipment, but we have never, ever come across a monitor so fickle.

We tried to get our hands on as many large LCDs and plasma monitors as possible, but it wasn't easy. Plasma screens are as rare as hen's teeth (see 'Plasma and LCD monitors', page 113), and according to one source, there is a worldwide shortage of LCD parts at present. Regardless, there are not that many LCD monitors with a display area comparable to that of a 17in CRT monitor.

JAG™



MAGnificent

"JAG" control is the revolutionary new rotary control with the circular patterned OSD menus.

Now, your screen can be adjusted to perfection with just a simple touch by using a single turnable knob with push button. You are able to easily control all the geometric settings (contrast, brightness, size, position, pincushion, rotation, trapezoid, parallelogram, degaussing, zoom, factory recall, and user mode) in an ergonomically correct position.

MAG monitors are dedicated to quality and customer service. We implement 100% Incoming Quality Control Policy using our own tightend specifications.

Not only do we thrive on quality and service, but also on innovation and technology. Today, all MAG monitors are conformed to the latest TCO standard. We provide two-year full warranty for all MAG monitors to give better service on top of highest quality products we supply.

MAG INNOVISION

MAGTRON

PC WORLD BEST BUY

PC WORLD BEST BUY

PC MAGAZINE EDITOR'S CHOICE

EXCLUSIVE AUSTRALIAN & NZ DISTRIBUTORS

Magtron Monitors (Australia) Pty Ltd

Unit B2 1-3 Rodborough Road
Frenchs Forest, NSW 2086
Ph (02) 9975 3727 Fax (02) 9975 4872
Internet: http://www.magtron.com.au

NSW:	CX COMPUTING	(02) 9233 6288	SA:	PC COMPUTERS	(08) 8332 6513
	GLOBAL BUSINESS TECHNOLOGY	(02) 9644 3900		OMINIL OGIC	(08) 8244 4211
	GLENEAGLES COMPUTER	(02) 9212 5888	TAS:	TOPSRAM	(0362) 348 144
	SYNAX SYSTEM	(02) 9905 5977		YAMAKHOSI	(0362) 270 414
	MICRO PRO-MANLY	(02) 9977 6111	NZ:	DORNWELL TECH.	(649) 624 3200
VIC:	UTC INTERNATIONAL	(03) 9809 6644	PNG:	HIGH TECH	(675) 325 7477
QLD:	ABLE SYSTEMS	(07) 3257 1772			

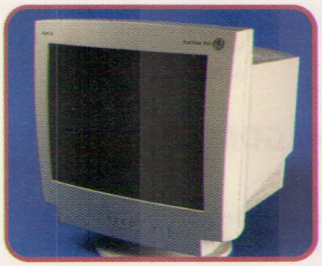
● 19in MONITORS

99c

ACER



The Acer 99c did not knock our socks off as much as the 21in Acer we reviewed (see page 110). It is one of the cheapest 19in monitors we tested, but this cheaper price comes with a compromise in quality. The image was not as sharp as it could have been, but was still



better than the Hitachi and Magtron. The level of brightness also left a lot to be desired, coming equal last in our results with the Magtron.

Overall, we found the monitor easy to use, with good colour definition (minimal colour misregistration) and text clarity. It was not the worst monitor we looked at. All up, the Acer 99c is Sony's equal in some respects, and has an extremely attractive price tag.

- **Distributor** Servex
- **Phone** (02) 8762 3500
- **Online** http://www.servex.com.au/
- **Price** $1,199
- **In short** Well priced but lacking quality.

VL950T

CTX

The CTX monitor was quite a pleasant surprise. Not only was it the cheapest 19in monitor we reviewed, it also performed admirably. It had better text definition and clarity than the Sony, but couldn't quite match its brightness and image quality over a distance.

The onscreen display (OSD, for adjusting the image) was refreshingly easy to use. You can set a timer for the OSD; this is more useful than most monitors, which have a 10 to 20-second delay before the OSD disappears.

This plug-and-play monitor is one of the best 19in displays that we saw in this roundup, second only to the Mitsubishi Diamond View 1995. The CTX is very competitively priced, performs competently and is easy to use.

- **Distributor** Ocean Office Automation
- **Phone** 132 286
- **Online** http://www.ctxintl.com/
- **Price** $1,050
- **In short** Great price for a great monitor.

CM753

HITACHI

Although this is not a bad monitor, neither the 19in nor the 21in Hitachi monitor cuts the mustard in comparison with the others in the review.

The CM753 was lacking in terms of image and colour sharpness. It was also one of the few monitors that displayed quite noticeable colour misregistration. Even with the brightness control on full it was still too dark — the whites were distinctly greyish in colour.

The OSD and menu were easy to use, however, and were quite effective in controlling any screen distortion or problems.

This was also one of the most expensive 19in monitors in our review, coming second only to the Sony Trinitron but falling well below it in terms of performance.

WIN $10,000 OF SONY STUFF



... YOU CHOOSE!

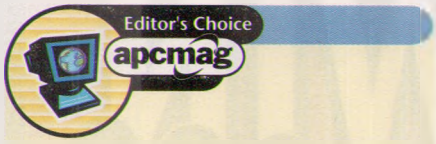
Sony is giving you the chance to win $10,000 worth of great Sony gear when you buy Sony Data Media Products between now and the end of May.

To enter, just send a promotional label from boxes of Sony floppies and Sony CD-R's or an entry leaflet and barcode from Sony 4mm DDS or Travan Cartridge.

One lucky winner will get to choose $10,000 worth of Sony IT or consumer products so get your entry in now!

Call 1800 226 429 for your nearest Sony reseller or for more information or visit our website www.sony.com.au

SONY



EDITOR'S CHOICE

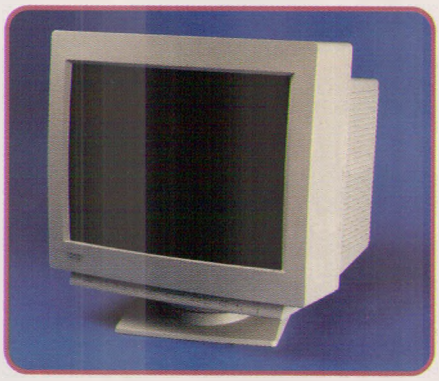
- **Mitsubishi Diamond View 1995**

HIGHLY COMMENDED

- **CTX VL950T**

Although we used the Sony Trinitron as a baseline for comparison (due to its great picture and quality), we have not given it an award because of its high price. We were quite taken with the Diamond View 1995 monitor. It scored well and has a very crisp display, although it wasn't the easiest to use.

Another impressive monitor was the CTX VL950T. Although the brightness and screen quality over a distance were not as good as some of the other monitors here, it performed very well in our tests. It was also the cheapest monitor in our roundup.



Distributor	Hitachi
Phone	(02) 9888 4100
Online	http://www.hitachi.com.au/
Price	$2,099
In short	Too expensive for the quality.

XJ-810

MAGTRON

For a monitor aimed at the high-end/professional market, Magtron has not done too badly with the XJ-810. In terms of colour quality and crispness it equalled the Sony; there was very little colour misregistration and no distortion.

The overall image sharpness was not quite as good you might like, especially if you rely on your monitor for detailed graphics work and imaging. For high-contrast images, though (such as white text on a black background), the display was



crisp and clear. We found that we had to turn the brightness to its maximum setting to equal the Sony display.

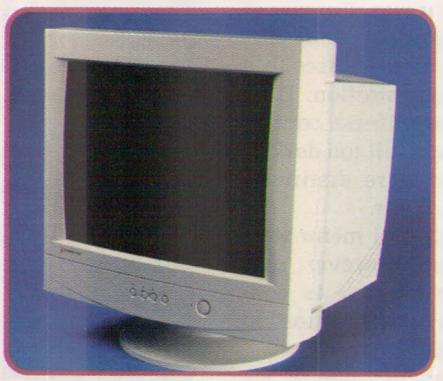
Out of all of the 19in displays it had the most user-friendly OSD and menu, which made it the easiest monitor to set up and use. For a monitor aimed at the professional, Magtron has priced the XJ-810 quite attractively at $1,373.

Distributor	Magtron Monitors
Phone	(02) 9975 3727
Online	http://www.magtron.com.au/
Price	$1,373
In short	A good monitor, but not the best.

Diamond View 1995

MITSUBISHI

This monitor was the only 19in to equal and better the Sony in our tests, and it did so with the third-cheapest price out of the lot. Overall, we found the screen image had sharper definition and more clarity than any of the other monitors, including the 21in models. Paradoxically, though, the readability of text was not as good as it could have been.



The Diamond View scored well in terms of brightness and image quality over a distance. The colour quality was also quite good, with minimal misregistration in the tests. It shares the same OSD menu and controls as the Acer 99c, which we didn't find as good as those of the Sony or Magtron.

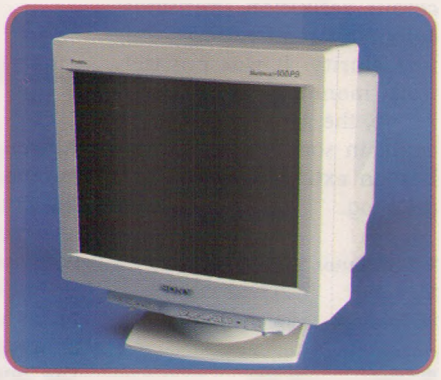
All up, we were extremely impressed with the Diamond View. The antiglare coating on the tube worked rather well, but couldn't quite match the Trinitron for reflection-free viewing.

Distributor	Mitsubishi Electric
Phone	(02) 9684 7777
Online	http://www.mitsubishi-electric.com.au/
Price	$1,349
In short	At the lower end of the price scale, but at the higher end of the performance chart.

Trinitron GDM 400PS

SONY

The fact that we used the Sony Trinitron as a baseline against which all other monitors were compared should tell you something about the quality of this monitor. Sony had the upper hand until late last year by exclusively using its Trinitron flat-screen technology, but in this review we've seen some other contenders sharing that technology and giving Sony a run for its money.



What can we say about the GDM 400PS? Everything about it is fabulous. We were expecting the Sony to come out on top of the pack, but surprisingly it was beaten by some of the other monitors in a few aspects, namely the sharpness of the image and text readability. Aside from these points, the Sony Trinitron GDM 400PS is a great monitor. Our only gripe is that it's far too expensive.

Distributor	Sony
Phone	1800 226 429
Online	http://www.sony.com.au/
Price	$2,186
In short	Pricey but fabulous.

Graphic G790

VIEWSONIC

The G790 is aimed at the graphics market. Although it comes close to the Sony, it does not quite deliver the colour quality you would expect from a high-end monitor.

Priced in the middle of the pack, the G790's image sharpness and quality can't be faulted, except that it lost some picture definition from a distance. There was slight colour misregistration and the brightness and contrast weren't as sharp



as they could have been, but in normal use the display was quite crisp and clean. One thing that was noticeable was its lack of glare; it was almost as glare free as the Sony.

Distributor	Chips and Bits
Phone	(03) 9696 1911
Online	http://www.viewsonic.com/
Price	$1,599
In short	Averagely priced and competent.

How we tested

Testing a monitor is subjective, as the only way you can measure the brightness, contrast, colour and picture quality of a screen is with the human eye.

To achieve the most accurate results possible, we used Sonera Technologies' program, DisplayMate, to rate the monitors. To ensure the best results and to limit discrepancies, only one reviewer tested all of the displays.

To do this, we set up 'baseline' monitors, against which all others were compared. We selected the Sony Trinitron GDM 400PS and GDM 500PS due to their high quality. These monitors were calibrated to give the best picture possible, and then given a score of 8 for every result.

Our monitors were connected to a Gateway Pentium II 300 with 32M of RAM and an ATI 3D Rage Pro graphics card. The video signal was split on a cable capable of 1,024 by 768 at 85Hz on each connection. The testing software used a resolution of 800 by 600 at 85Hz, which is less than the optimal resolution of each monitor. (Using the monitors at their optimal resolution will yield better results.) Each monitor was calibrated to give the best results possible.

What we looked for

- Moiré patterns — the wavy flickering sometimes seen on a screen.
- Colour misregistration — slight distortion where contrasting colours meet (horizontal and vertical).
- Background interference — anything visible on the screen that is not part of the projected image.
- Colour purity — uniformity of colours across the screen.
- Pincushion distortion — when the sides of the screen are warped.
- Focus — general image quality over the display (particularly in the corners).
- Ghosting and streaking — images present that shouldn't be (usually noticed with high-contrast images).
- Glare — room glare appearing on the screen.

We rated the monitors out of 10 (the baseline monitors scored 8) for each of the following aspects.

- **Image sharpness** We tested using images of varying sizes for loss of definition or fuzziness.
- **Text readability** How well could the text be read in different sizes, different colours and on different backgrounds? Was the text sharp or fuzzy?
- **Colour sharpness** How well defined were the colours?
- **Colour quality** How true were the colours? Was there any loss of quality across the screen? Any misregistration?
- **Brightness** How bright was the display and especially the white?
- **Quality at a distance** How good was the display definition at a distance?
- **Ease of use** How simple was it to set up? Are the controls and OSD easy to use?

Monitors are a waste of Space!

8-port KVM Switch

From: $1699

Less with Trade in



For more information

Freecall

1800 680 086

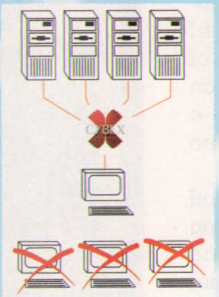
The AutoView allows you to control up to 128 computers using a single keyboard and mouse.

This creates more space in your office and allows you to save on expensive hardware.

On Screen Display helps you navigate easily accross your servers and password access keeps the system secure.

Distance isn't even a problem, ask about LongView.

LongView provides access via a single Cat V cable from up to 150 metres away from the server room.



Our KVM solutions start with the 2 port (SwitchView) from $345 up to 3048 ports with multiple users on almost any hardware platform with the Commander 4XP.



CASH BACK OFFER up to $200 Trade In!

** Conditions Apply

Cybex Distribution
P O Box 455
Nundah, Qld, 4010
Australia

Phone: +61 7 3250 7777
Fax: +61 7 3257 1700
E-mail: brsales@blueridge.com.au
Web: www.blueridge.com.au

● 21in MONITORS

211c

ACER

We preferred this monitor to the 19in Acer, and in many regards it scored better than the Sony. We were impressed with the crispness of the display, both for the readability of text and the overall image quality.

We found remarkable similarities between this monitor and the Mitsubishi Diamond View 2107. Not only do they feature the same OSD and control functions, but also when we scored the monitors, they both rated exactly the same. Because of the easy-to-use OSD and menu, we gave both a higher score than the Sony.



The only part of the test where this monitor was found to be lacking was its brightness and contrast controls. They had to be set quite high to achieve a good result, but not as high as some of the monitors which required 100% on both.

Distributor	Servex
Phone	(02) 8762 3500
Online	http://www.servex.com.au/
Price	$2,499
In short	A very good monitor.

SuperScan CM813

HITACHI

We weren't blown away by either of the Hitachi monitors submitted to us for testing, which is strange, because Hitachi used to be one of the prime providers of CRT tubes. Overall, the picture quality on the monitor we tested suffered due to a moiré pattern that we couldn't shake no matter what we tried.

It had good text clarity, and the OSD and menu were simple to use, but it was lacking in other areas. The colour quality and sharpness did not quite match the other screens, and the colour registration was worse in this display than any other.



The maximum resolution of this display (1,856 by 1,392) is larger than normal — ideal for the graphics professional. For a high-end monitor, it is reasonably priced, but still one of the more expensive displays we tested.

Distributor	Hitachi
Phone	(02) 9888 4100
Online	http://www.hitachi.com.au/
Price	$3,699
In short	Good price for a high-end monitor.

P202

IBM

This is the first of three 21in monitors we tested which featured a Trinitron tube. They all scored identically in our tests, but we gave the IBM a slightly higher score for ease of use, due to its comprehensive but simple OSD and menu.

We could not fault the P202 at all, apart from the two visible cable lines at one-third and two-thirds of the way up the screen. The picture quality however is great, the clarity and colours crisp and rich. It also features dual video inputs to allow two systems to share one screen.

Remarkably, the IBM P202 is priced similarly to the more expensive 19in displays but nearly $1,000 cheaper then the next nearest-priced Trinitron display (Sony), which finally places a 21in Trinitron within the reach of mere mortals.



Distributor	IBM
Phone	132 426
Online	http://www.ibm.com.au/
Price	$2,474
In short	$2,474 for a 21in Trinitron? Get it while stocks last.

DJ920

MAGTRON

The DJ920 impressed us in all areas aside from one — the colour quality. The corners of the monitor we tested had slight distortion and discoloration. This was a problem we were unable to fix. Surprisingly, though, the monitor had the best colour registration of all of the monitors we tested.

The display was crisper and cleaner than the Sony, regardless of the corner distortion; it equalled the quality of the Acer 211c and Diamond View 2107 for sharpness. Text was easy to read, the colours were crisp and the quality was good over a reasonable distance.

All up we were impressed with this monitor. It's affordable, had very sharp images and was reasonably easy to use.



Distributor	Magtron Monitors
Phone	(02) 9975 3727
Online	http://www.magtron.com.au/
Price	$2,242
In short	A very good monitor at a good price.

Diamond View 2107

MITSUBISHI

As mentioned in the Acer 211c review, both these monitors share the same OSD, and scored exactly the same in our tests. Essentially, they are the same monitor, although we did prefer the control design of the Diamond View. Even better, this one costs over $300 less than the Acer 211c.

In every respect apart from brightness, the Diamond View 2107 scored equal to or



better than the Sony. The picture was extremely crisp and clear, and there was only the slightest hint of colour misregistration. Text was extremely easy to read, and the quality over a distance was great.

Distributor	Mitsubishi Electric
Phone	(02) 9684 7777
Online	http://www.mitsubishi-electric.com.au/
Price	$2,195
In short	Great price for a great monitor.

Editor's Choice apcmag

EDITOR'S CHOICE

- **Mitsubishi Diamond View 2107**

HIGHLY COMMENDED

- **IBM P202**

Mitsubishi has done it again with the 21in Diamond View. Compared to the Sony Trinitron, the Diamond View scored equal to, or better than it in every regard apart from brightness. We loved the controls (the same as those used by the Acer 211c) and were quite impressed overall with the picture quality.

Coming close to being nominated for Editor's Choice was the IBM P202. Out of the three 21in Trinitron CRTs featured here, we liked this one the best. The controls were slightly better than the Sony and NEC screens, but other than that, it scored exactly the same. What makes it stand apart though is the price — $2,474. This is unusually cheap for a Trinitron screen, and gets our thumbs up for value.

MultiSync P1250+

NEC

The NEC MultiSync P1250+ performed well in all of our tests, and scored identically to the other two 21in Trinitron monitors (apart from IBM's 'ease of use' score). Once again, the two cable lines were visible on the screen, but these are mainly noticeable in a flat-coloured display, not so much when displaying pictures or multicoloured images.

The MultiSync P1250+ is aimed at power users, CAD/CAM operators, DTP and graphic designers; the maximum resolution is set higher than normal at 1,800 by 1,440 at 73Hz. The display was crisp and clean with no picture distortion — if you ignore the 'facing east' problem (see page 105). Unfortunately, being a high-end monitor, it has been priced accordingly. Power users could do a lot worse than the MultiSync P1250+.

Distributor	NEC
Phone	(02) 9930 2000
Online	http://www.nec.com.au/
Price	$3,900
In short	Capable high-end Trinitron.

PanaSync S110

PANASONIC

The PanaSync S110 is another good monitor that falls just short of equalling the Sony Trinitron. The image clarity and sharpness was on a par, but the colour crispness and







DON'T MONKEY AROUND

our short term rentals are sure to make your presentation, training, or corporate event so much more professional and efficient.

- computers
- notebooks
- printers
- scanners
- projectors
- monitors
- networking
- and more!



DAILY WEEKLY MONTHLY ANNUAL COMPUTER RENTALS

Australia's largest Computer Rentals Company offers expert advice, friendly staff, on-site service, options to buy and more.

YEAR 2000 COMPLIANT
VIRUS CHECKED • FULLY SERVICED

call the following number to be linked directly to your nearest outlet for the cost of a local call.

1300 655551
WWW.HIRE-INTELLIGENCE.COM.AU

Adelaide • Brisbane • Melbourne • Perth • Sydney
Bunbury • Canberra • Mackay • Newcastle • Wollongong
London • Reading • Birmingham • Glasgow • Dublin



Hire Intelligence
the intelligent choice in computer rentals

the general display from a distance were not as good. As with the Sony, there was only the slightest hint of colour misregistration.

Once again, we had to set the brightness and contrast rather high, and even then the whites were not glaring. The display was brighter than the ViewSonic and Hitachi 21in displays. It didn't have much reflection or glare.

- **Distributor** Panasonic
- **Phone** 132 600
- **Online** http://www.panasonic.com.au/
- **Price** $2,700
- **In short** Slightly pricey in comparison to the other screens.

Trinitron GDM 500PS

SONY

As we have mentioned, the Sony Trinitron was our baseline for comparison, chosen for its known high quality.

Choosing the best 21in Trinitron monitor was a difficult decision; the quality of all three in these reviews were on a par. The clarity, colours, brightness and overall picture were superb. The only thing we didn't like was the sometimes perceptible cable lines across the screen.

The flat screens cut down on reflection



and glare, and the Sony's controls were quite simple to master. The only drawback with the Sony Trinitron is that it is expensive.

- **Distributor** Sony Australia
- **Phone** 1800 226 429
- **Online** http://www.sony.com.au/
- **Price** $3,272
- **In short** Great quality but still expensive.

Professional P817

VIEWSONIC

This is another high-end monitor for the CAD/CAM operator or graphics professional. The maximum resolution is a



whopping 2,048 by 1,536 at 85Hz, and the scanning frequencies are higher than any other monitor here.

At our low testing resolution (800 by 600), the display was not capable of delivering the greatest picture quality. The image and colours were not the sharpest, and the maximum brightness left a lot to be desired. The image focus seemed to be out slightly at the corners. However, when we increased the resolution, this problem corrected itself.

- **Distributor** Chips and Bits
- **Phone** (03) 9696 1911
- **Online** http://www.viewsonic.com/
- **Price** $4,679
- **In short** One of the best high-end screens on the market.

19in monitors: Vital statistics

	Acer 99c	CTX VL950T	Hitachi CM753	Magtron XJ-810	Mitsubishi Diamond View 1995	Sony Trinitron GDM 400PS	ViewSonic Graphic G790
Distributor	Servex	Ocean Office Automation	Hitachi	Magtron Monitors	Mitsubishi Electric	Sony	Chips and Bits
Phone	(02) 8762 3500	132 286	(02) 9888 4100	(02) 9975 3727	(02) 9684 7777	1800 226 429	(03) 9696 1911
Online	http://www.servex.com.au/	http://www.ctxintl.com/	http://www.hitachi.com.au/	http://www.magtron.com.au/	http://www.mitsubishi-electric.com.au/	http://www.sony.com.au/	http://www.viewsonic.com/
Display size	19in	19in	19in	19in	19in	19in	19in
Price	$1,199	$1,050	$2,099	$1,373	$1,349	$2,186	$1,559
Warranty	3 years onsite	3 years limited	3 years	3 years RTB	3 years limited onsite	3 years onsite	3 years onsite
Specifications							
Maximum resolution	1,600 by 1,200 at 76Hz	1,600 by 1,200 at 75Hz	1,600 by 1,200 at 85Hz	1,600 by 1,200 at 75Hz	1,600 by 1,200 at 75Hz	1,600 by 1,200 at 75Hz	1,600 by 1,200 at 76Hz
Dot pitch	0.26mm	0.26mm	0.22mm (vertical) / 0.14mm (horizontal)	0.22mm	0.26mm	0.25 to 0.27mm (variable)	0.26mm
Scanning frequency horizontal/vertical (KHz)	30 to 95KHz/50 to 160KHz	30 to 95KHz/50 to 160KHz	31 to 107KHz/50 to 160KHz	30 to 95KHz/50 to 160KHz	30 to 95KHz/50 to 160KHz	30 to 94KHz/48 to 160KHz	30 to 95KHz/50 to 180KHz
Viewable area	18in	18in	18in	18in	18in	18in	18in
Dimensions (h by w by d)	472 by 466 by 493mm	460 by 461 by 476mm	434 by 505 by 460mm	460 by 463 by 465mm	472 by 466 by 493mm	449 by 441 by 502mm	452 by 450 by 465mm
Weight	22.9kg	22.5kg	24kg	26kg	23kg	25kg	22kg
Results							
Image sharpness	7.5	8	7	7	9	8	8
Colour sharpness	8	8	8	8	8	8	7.5
Color quality	8	8	7.5	8	8	8	7.5
Text readability	8	8.5	7.5	8	7.5	8	8
Brightness	6.5	7.5	7	6.5	8.5	8	7
Quality from a distance	8	7.5	7.5	7.5	8.5	8	7.5
Ease of use	7	8	8	8.5	7	8	8

21in monitors: Vital statistics

	Acer 211c	Hitachi SuperScan CM813	IBM P202	Magtron DJ920	Mitsubishi Diamond View 2107
Distributor	Servex	Hitachi	IBM	Magtron Monitors	Mitsubishi Electric
Phone	(02) 8762 3500	(02) 9888 4100	132 426	(02) 9975 3727	(02) 9684 7777
Online	http://www.servex.com.au/	http://www.hitachi.com.au/	http://www.ibm.com.au/	http://www.magtron.com.au/	http://www.mitsubishi-electric.com.au/
Display size	21in	21in	21in	21in	21in
Price	$2,499	$3,699	$2,474	$2,242	$2,195
Warranty	3 years onsite	3 years	3 years RTB	3 years RTB	3 years limited onsite
Specifications					
Maximum resolution	1,600 by 1,200 at 85Hz	1,856 by 1,392 at 80Hz	1,600 by 1,200 at 85Hz	1,600 by 1,200 at 85Hz	1,600 by 1,200 at 85Hz
Dot pitch	0.26mm	0.22mm (vertical)/0.16mm (horizontal)	0.25 to 0.27mm (variable)	0.28mm	0.26mm
Scanning frequency horizontal/vertical	30 to 107KHz/50 to 160KHz	31 to 115KHz/50 to 160KHz	30 to 107KHz/50 to 160KHz	30 to 110KHz/50 to 160KHz	30 to 107KHz/50 to 160KHz
Viewable area	20in	20in	19.8in	20in	20in
Dimensions (h by w by d)	515 by 508 by 512mm	487 by 483 by 470mm	498 by 513 by 500mm	504 by 480 by 560mm	515 by 508 by 512mm
Weight	29.4kg	27.7kg	31kg	31.5kg	29.4kg
Results					
Image sharpness	8.5	7	8	8.5	8.5
Colour sharpness	8	7.5	8	8	8
Colour quality	8	7	8	6.5	8
Text readability	8.5	8	8	8.5	8.5
Brightness	7.5	6.5	8	8	7.5
Quality from a distance	8	7.5	8	8	8
Ease of use	9	8	8.5	8	9

	NEC MultiSync P1250+	Panasonic PanaSync S110	Sony Trinitron GDM 500PS	ViewSonic Professional P817
Distributor	NEC	Panasonic	Sony	Chips and Bits
Phone	(02) 9930 2000	132 600	1800 226 429	(03) 9696 1911
Online	http://www.nec.com.au/	http://www.panasonic.com.au/	http://www.sony.com.au/	http://www.viewsonic.com/
Display size	21in	21in	21in	21in
Price	$3,900	$2,700	$3,272	$4,679
Warranty	3 years	3 years	3 years onsite	3 years onsite
Specifications				
Maximum resolution	1,800 by 1,440 at 73Hz	1,600 by 1,200 at 75Hz	1,600 by 1,200 at 85Hz	2,048 by 1,536 at 85Hz
Dot pitch	0.28mm	0.25mm	0.25 to 0.27mm (variable)	0.26mm
Scanning frequency horizontal/vertical	30 to 110KHz/55 to 160KHz	30 to 94KHz/50 to 180KHz	30 to 107KHz/48 to 160KHz	30 to 137KHz/50 to 180KHz
Viewable area	19.6in	20in	19.8in	20in
Dimensions (h by w by d)	509 by 519 by 525mm	505 by 487 by 519mm	498 by 505 by 474mm	496 by 491 by 524mm
Weight	34.3kg	27.5kg	31kg	30kg
Results				
Image sharpness	8	8	8	7
Colour sharpness	8	7.5	8	7
Colour quality	8	8	8	7.5
Text readability	8	8	8	8
Brightness	8	7	8	6.5
Quality from a distance	8	7.5	8	8
Ease of use	8	8	8	8

Plasma and LCD monitors

We looked at three big LCDs, but due to space constraints the reviews will appear only on our Web site, **apcmag.com**.

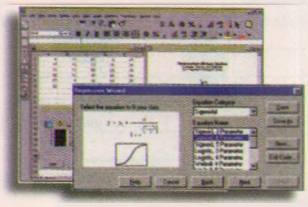
We were hoping to be able to review some plasma screens too, but as well as being expensive, they are also scarce. A plasma screen usually has a display size of 42in and can display resolutions up to 800 by 600. This may not sound like much on such a large screen, but it does look good.

Unfortunately, the manufacturing process for creating the screens has not been perfected yet, so only 10% to 20% of the screens manufactured are of usable quality. This bumps the sale price up to astronomical limits (over $15,000), making them too expensive at the moment for most purposes.

Sony, Fujitsu, Philips, NEC and Panasonic currently manufacture these screens, but evaluation units are rarer than the sale units. Meanwhile, the R&D people are working on the manufacturing process and increasing the maximum resolution available. Until the prices come down and more screens become available, we can only wait and dream.

Darren Ellis

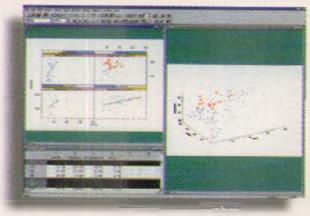
The Essential Desktop for Scientists and Engineers



SigmaPlot

FLEXIBLE SCIENTIFIC GRAPHING

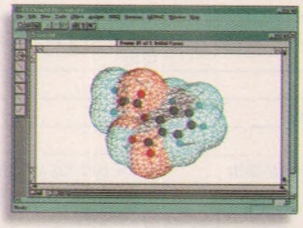
Fast graph creation starts with SigmaPlot's award-winning interface. Take advantage of industry standard menu design,menu toolbars, right mouse button support and graph preferences. Quickly select the graph type you want to create from the easy-to-read icons of the Graph Toolbar. The interactive Graph Wizard leads you through every step of graph creation.Set your favorite graph preferences with Graph Defaults. And, to create similar graphs again and again, make your graph a template.



S-Plus

POWERFUL STATISTICS

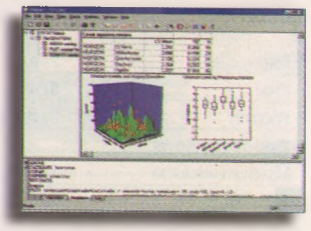
S-PLUS is the premier solution for exploratory data analysis and statistical modeling. With over 2,000 data analysis functions, including the most comprehensive set of robust and modern methods available anywhere, S-PLUS allows you to perform more insightful analysis, create revealing graphics and make more informed business decisions. With point-and-click ease, you can import your data, select your statistical functions and display your results. Powerful S-PLUS Professional techniques are at your fingertips.



CS ChemOffice Ultra

DRAWING, MODELLING AND INFORMATION

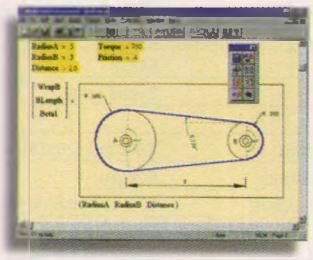
The gold standard for researching and presenting chemical information. CS ChemOffice gives you a powerful and intuitive tool for chemical structure drawing and publishing, the ability to visualise and model structures in three dimensions, a fast, intelligent database browser and access to high-quality chemical databases for all types of reference work. An integrated suite that addresses all the day-to-day needs of chemists.



SYSTAT

UNPARALLELED RESEARCH QUALITY STATISTICS AND GRAPHICS

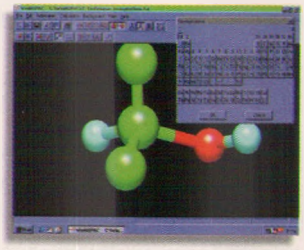
SYSTAT's core strength derives from the breadth, depth and robustness of its statistical procedures. Built upon this foundation is one of the most extensive and interactive library of graphical tools available on the market. Researchers can rely on SYSTAT to bring their data to life and deliver accurate results-even with the most unsavory data sets. Serious researchers, like you, can rely on SYSTAT from data to discovery.



Mathcad

ENVIRONMENT FOR TECHNICAL CALCULATIONS

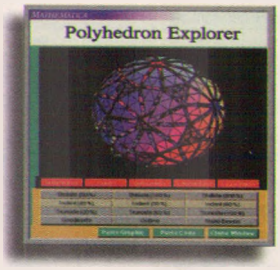
Mathcad lets you integrate real math notation, graphs and text in a unique interactive worksheet. So it's the perfect tool for performing, documenting and communicating your technical work. Plus you get even more math power and richer analytical, reporting, and presentation capabilities including Open GL® 3D graphics. Built-in Web-based publishing and collaboration tools, make it easy to share your results.



WinMOPAC

SEMI-EMPIRICAL CHEMICAL MODELLING

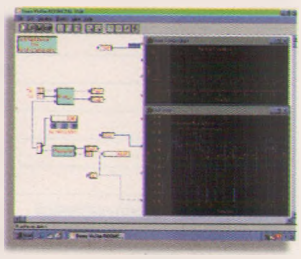
Computational chemistry software developed by Fujitsu, especially designed to be accurate, versatile, fast and easy to use. Quite possibly the most widely used software package for predicting the properties of molecules and reactions, WinMOPAC rapidly generates images of molecular orbitals, and creates high quality colour graphics output using OpenGL. Use WinMOPAC to experiment with new catalysts or reaction conditions on a personal computer, in a fraction of the time it would take to do all the experiments in the lab.



Mathematica

QUICK, ACCURATE, NUMERIC AND SYMBOLIC SOLUTIONS

This complete environment for culating and communicating in science and technology already delivers computing power to over one million people around the world. Breakthrough new features, such as an innovative typesetting system that can do maths, now make Mathematica even easier to use. Known for delivering quick, accurate numeric and symbolic solutions.



Vissim

SIMULATION AND MODELLING

Use VisSim's intuitive drag and drop block diagram interface to model and simulate complex dynamic systems. The VisSim simulation engine provides fast, accurate solutions for many system designs, providing you with a fully integrated control system design environment without requiring you to write a line of code. Take advantage of the benefits of using VisSim - faster time to market, lower overall design costs, less time training and more time engineering.

Hearne Scientific Software

Quality System
Quality Endorsed Company

Level 6
552 Lonsdale St
Melbourne 3000
Australia
Ph: 03 9602 5088
Fx: 03 9602 5050
info@hearne.com.au
www.hearne.com.au

PO Box 56036
Tawa
Wellington
New Zealand
Ph: 04 232 4440
Fx: 04 232 4452
info@hearne.co.nz
www.hearne.co.nz

freecall: 1800 35 MATH

freecall: 1800 35 STAT

A look at the top three commercial groupware solutions.

By APC staff

All together now

Groupware is more than just messaging. If all you want is email, you should use Sendmail. Calendaring, scheduling, document management and workflow are the hallmarks of a well-utilised groupware package. Publishing for internal use and on the Internet have also become important components in recent product releases. Each groupware package deals with these issues to a greater or lesser degree.

Figures from research group IDC at the end of last year put Lotus Notes in the lead position in the groupware market with 29.57 million seats worldwide. Microsoft Exchange Server followed with 21.19 million seats and Novell GroupWise with 14.21 million seats. Notes also led in terms of growth. It had 13.44 million new users worldwide in 1998, while Exchange had 11.78 million new users. The market for GroupWise also increased, although more slowly, with 4.51 million new users in 1998.

For the purpose of this feature, we've looked at the current state of each of these products, or, in the case of Notes, what's coming up this year (the full version of Notes 5.0 may be available by the time you read this). Unfortunately, due to its early stage of development and reliance on Active Directory, we could not review Exchange Platinum, Microsoft's upcoming version of Exchange.

The big trend is a move towards open Internet standards and homogenous clients. In each of the three major packages, email can be accessed via standard mail clients using IMAP or POP. Mail directories are accessible via LDAP and transferred via SMTP. In fact, each of them actually goes a step further, providing HTML access to mail through forms. Other applications, including calendaring, are similarly accessible via HTML, although the development required to make this happen varies considerably depending on the platform. It's clear that the intranet is not dead.



All three companies have done a very good job of maintaining support for their existing clients and applications, even as the products have progressed through generations. The platform's preferred client still works the best; Web browsers can only do so much.

Novell and Microsoft have gone to great pains to ensure their respective groupware platforms tie in well with their operating systems by including integration with directory services, object and development models, and other core OS features. For these platforms, it is a double-edged sword — GroupWise and Exchange work well on their native platforms (for Exchange, the server only runs on the native platform), but their cross-platform abilities are limited. Notes lacks this OS integration, enabling it to be installed on a variety of platforms, but sacrifices other aspects as a result.

Notes, the first real groupware package, still has a lot to offer — and a long way to go. Microsoft and Novell are more recent comers to the market and have done a great job of copying the good features of the Lotus package, and have even introduced some innovations of their own in recent versions. In the end, you should choose the package that integrates best with your business practices and current systems. We haven't awarded an *APC* Editor's Choice award in this review because each package provides different features appropriate for different organisations. Some people may even want to patch together their own solutions, and we've got some tips for this beginning on page 124.

Although we decided to review the top three commercial packages, some of the lesser known solutions — such as Netscape SuiteSpot or Fujitsu's TeamWare Office — should not be overlooked if you're in the market for groupware.

Reviews

- Lotus Notes 5.0 Beta Page 116
- Microsoft Exchange 5.5 Page 118
- Novell GroupWise 5.5 Page 120

Plus

- Do-it-yourself groupware Page 124

Notes/Domino 5.0

LOTUS

Lotus Notes has always been a jack-of-all-trades. While other platforms separated messaging and applications, Notes' flat-file, database-driven infrastructure successfully integrated email, calendaring and business applications.

Although Notes has largely been deployed as a messaging product, its capabilities extend to business applications, particularly database-driven applications. For instance, an inbuilt word processor (which is nothing on the scale of a proper word processor) can deal with the creation of various types of documents directly within Notes databases. Developing applications under Notes has always been dead easy, because of its tight framework. Notes also pioneered the concept of replication — synchronising databases of different devices. A proprietary client (the Notes client) used to be required to run these applications.

Version 4 of Notes (the server has been renamed Domino) introduced Web serving to the product. Applications developed in Notes could be dynamically converted into HTML pages and forms for display on Web sites and intranets. This would have made the proprietary client obsolete, except for the fact that it was still a much better client than a Web browser for most applications.

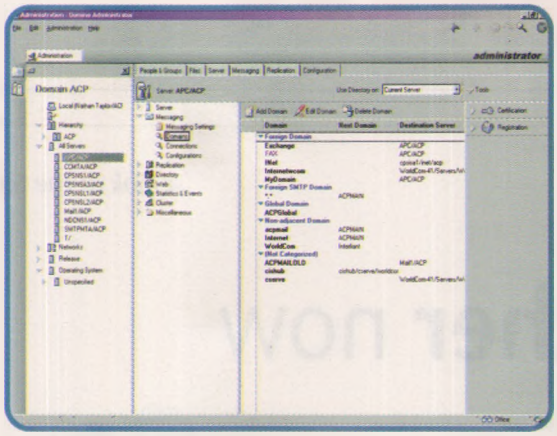
Version 5.0, which may be available by the time you read this (we looked at a late beta), promises to take the support of open standards to a new level. It is also designed to address many of the criticisms directed at 4.x versions of the product, such as its limited scalability and the many problems it had serving Web sites.

A big advantage of using Notes is platform support. Lotus has ported the product to more platforms than either of its main competitors, running the server on NT, OS/2 and a variety of Unix platforms including AIX, Solaris, and HP/UX. There is also talk of a Linux port. Client platforms are currently more limited, but with the moves Lotus has made with the product, this is becoming less relevant.

We were impressed by what we saw in the latest iteration of Notes. It includes some real improvements, but some of the Notes faithful may not be impressed with the direction Lotus is taking.

The client

The Notes client has received a serious upgrade from previous versions. The



ancient 'workspace' has gone, replaced by a slick new look and an Outlook 98-style view. On the other hand, the client is still not the smoothest piece of software available, and the promised multithreading has not eventuated. The client is not much lighter than the somewhat bloated and clunky 4.6 client, especially when you factor in the designer (see below).

Users of Notes 4.6 and previous versions will be familiar with the utilitarian workspace — a simple framework in which every task, including mail, is treated simply as an application which is accessed by double-clicking on an icon in the workspace. A more complex framework has replaced this system in Notes 5.0, similar in many ways to common Internet and mail clients, with back, forward, stop and reload navigation controls to boot.

Databases, Web pages and Notes applications, including mail and calendaring, are now accessed via a group of icons located on a think frame on the left-hand side of the screen. Links to Web pages and Domino databases are treated indiscriminately in this frame, so a folder set up by a user could have links to Web pages and applications within the same folder. Similarly, searches can be performed universally on both Domino databases and Web pages.

The rendering of Web pages is now thankfully assigned to the IE engine, and it is much quicker at doing this than the previous versions of Notes (which could also use IE, but was painfully slow). The level of integration in the beta we looked at left a lot to be desired, however. The navigation controls, for instance, didn't work within the context of the browser, and actions like 'Open in new window' actually fired up IE. We hope this is fixed in the final version.

Instead of using either an MDI interface or separate windows for open documents and databases, the new client uses a tabbed interface to switch between open documents. Some will find this welcome, others will not.

When *APC* installed the product, it upgraded beautifully over a 4.6 install of Notes, placing the workspace and favourites configuration in folders on the menu on the left-hand side of the screen, easily accessible as pull-out menus. It also imported bookmarks from Internet Explorer and Netscape Navigator, creating link folders with the others on the left-hand side of the screen.

Perhaps to its detriment, the client has lost focus as an application framework, becoming, well, Outlook. Its primary purpose is now to be an Internet client, supporting the latest mail protocols, Web access, calendaring and surfing. This does make the client more appropriate for organisations which are not exclusively Notes, or those which do not even run Domino at all (but then, why would you bother?). It all makes for a better client for Webified Domino applications — but a little annoying if one's primary use is native applications. That said, the client can still run 'legacy' Notes applications perfectly.

The Administrator

For Notes administrators finding no other reason to upgrade to Notes 5.0, the new Administrator should be just about enough to justify the cost. The Administrator is a godsend for Domino admins — it takes a previously clumsy, haphazard framework and replaces it with a simple application for managing groups of Domino servers. It

Lotus Notes/Domino 5.0

Pros

- Can do pretty much everything the other packages do, plus more;
- Excellent design interface;
- Integrates Web, messaging and business applications very well.

Cons

- Bloated and not terribly quick. High memory use;
- Some configuration options are not particularly intuitive;
- Given to crashes and instability (Note: we looked at a beta of Version 5.0, but 4.6 also had these problems).

C-Tick Approved!

THE BEST CASE IN AUSTRALIA

Micro ATX case

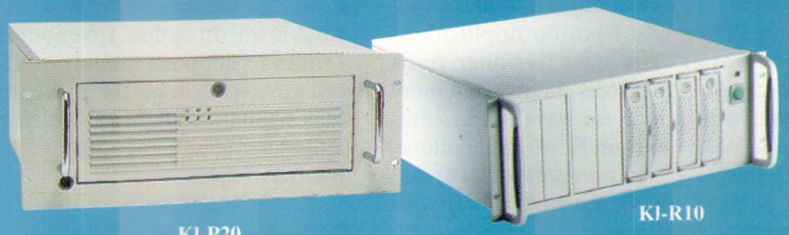
- Anti-theft cover design
- 3 pcs screwless slide out lid for easy assembly
- Safe hand cut free edge
- Meet intel 2.01 version I/O shield specification
- Optional FAN: 8CMX1 (Front) + 6CMX1 (Rear)



KA-M10 KA-M80

19" Industrial Rack Mount Case

- Suitable for ATX/ AT form factor
- Extra large cooling fan through dust filter
- Optionally for dual hot swappable P/ S



KI-P20 KI-R10

Storage Cases

- For SCSI/ fast wide SCSI 68 pins
- Available from 1/ 2/ 4/ 8/ 14 bays
- Hot swappable RAID system mobile rack (MR -10) w/ fan alarm
- Aluminium alloy structure for excellent heat dispassion
- Cooling fan through dust filter



SM-300
SM-501
MR-10
SC-502
SM-504

Super NT Files Server Cases

- Easy to join/ split up both system and storage devices case in one/ two
- Optionally fitted in with Dual Hot swappable P/ S
- Good for hot swappable RAID mobile racks
- Convertible to 19" rack mount cases



NT-A18

Booth No.: F23

PCIT99

MACASE INDUSTRIAL CORP
IMAGE DESIGN & PERFORMANCE

Headquarters

MACASE INDUSTRIAL CORP.

Internet URL: http:// www. macase. com. tw
Email: sales@macase. com. tw

3F., No. 70, Sec. 1, Kwang- Fu Rd., San Chung Taipei Hsien, Taiwan TEL: 886- 2- 29954277 FAX: 886- 2-29954296

Australia / Sydney

Unit 3, 100- 108 Asquith Street, Silverwater 2128, N.S.W. Australia TEL: 61- 2- 97480001 FAX: 61- 2- 97480095

works best when managing 5.0 servers, but can actually work with most recent versions of Notes/Domino.

From the Administrator, you can manage people and groups for messaging, address books, server replication, cluster configuration, server tasks, performance logs, monitoring logs and so on. It can even manage files within the directories designated by Notes, so you can check available disk space and database sizes, as well as deleting or shifting databases.

Probably the other major reason to upgrade to Notes 5.0 is the Designer. Lotus' developers have done a fantastic job of taking the already excellent design interface and extending it to make developing Web-ready Domino applications much easier. The new Designer (now divorced from the Notes client) has a more powerful interface for developing compelling Web sites from Notes applications. With the Designer, framesets (at last!) and site outlines can be created, along with non-form-based pages.

Apart from its much improved interface and support for HTML features, Notes 5.0 Designer also sports a major new feature: support for Java. Within the IDE, developers can now use both Java and LotusScript to develop applications. Some well-implemented Java interfaces to Notes functionality are naturally supplied. CORBA and OLE are also supported. And as IDEs go, it isn't a bad one, offering some features that several purpose-built IDEs would do well to copy. As an added bonus, applications created can be previewed in Notes, Domino, IE and Netscape at the click of a button.

There are too many other features in the Designer to list here. Suffice to say, it is a real blessing for Notes developers involved in the development of Web applications. Others may not find the improvements as spectacular as we did, although it's hard to criticise the changes that have been made.

Domino Server

As you'd expect from a server upgrade, most of the advancements have happened under the hood. An effective 'install wizard' guides the administrator through the initial configuration, but after that, the system is best managed using the administration tool.

The biggest change from previous versions is probably the database structure. With IBM's assistance, Lotus has increased the certified database capacity from 4M to 64M, making it an effective competitor for the Platinum/SQL combination that Microsoft plans to push.

Other changes to the server product include support for native MIME, Post Office Protocol 3 (POPS3) and Internet Message Access Protocol 4 (IMAP4) for better mail interoperability. The server also supports SSL and LDAP (Lightweight Directory Access Protocol). It uses a proprietary but effective authentication scheme, based on password-protected ID files that need to be with the client (a new capability is the delivery of ID files to mobile users).

To overcome the previously laggard performance of Domino's HTTP stack, the server can now use the IIS stack on Windows NT systems, although the native stack is still an option. For enterprise users, Domino 5 supports failover and load balancing technology for mail and other Notes applications, along with automated billing services.

Nathan Taylor

Distributor	Lotus
Phone	(02) 9350 7700
Online	http://www.lotus.com/
Price	TBA
In short	Notes has a lot of features — and the new version builds upon these with greater support for standards.

Exchange 5.5

MICROSOFT

If there is one area in which Microsoft has invested heavily during the last two years, it is groupware. The company has waged a sometimes bitter and ugly war with its main rival in this space — Lotus. So gaining groupware mindshare has become a top Microsoft priority.

Microsoft does not combine all of the traditional features of 'groupware' into one package like Lotus does with its Notes/Domino product. Instead, Microsoft provides 'solutions' which come in the form of bundles of different applications, the end result being enterprise messaging and collaboration.

The messaging component of groupware is the backbone providing the transport for different types of information. Messaging in the Microsoft world comprises the server component, Exchange, and the client, Outlook. The current version of Exchange is Version 5.5 Service Pack 2, and at the time of writing, Outlook 98 was the latest client version available for the PC and Macintosh platforms.

While Exchange can be set up as a POP3 Internet mail server, the full benefits of collaboration and messaging are accessible using the Outlook client. Outlook is a feature-rich Personal Information Manager, and when tied together with the Exchange email system, provides a sophisticated calendaring and messaging system. Overall, a rich text environment for sending emails within an organisation.

Connections

To talk to other mail systems, Exchange uses a series of connectors which are available for Lotus cc:Mail and Notes, Microsoft Mail, Internet mail, Internet News, IBM OfficeVision/VM and SNADS. There is also an X.400 connector that is used to allow different Exchange sites to talk to each other. The second service pack for Exchange 5.5 enables calendar sharing between Exchange users and Lotus Notes, Novell GroupWise and Office Vision/VM users.

Replication is still not one of Exchange's strong points, remaining less sophisticated than either GroupWise or Notes. Users can synchronise their mailboxes, but they are required to replicate their entire data stores.

Outlook has great folder-management and message-filtering capabilities and views in Outlook 98 are heavily customisable and easy to manage. The Rules Wizard in Outlook 98 is very useful for setting up filters and junk email traps. While Outlook 98 is a great email interface, there's still the option to use Word 97 and your email editor for rich text messaging.

Microsoft's solution to provide collaborative applications is the capability to develop forms in Visual Basic and provide them through public Exchange folders. Developers can also use Outlook forms, C++ or MAPI to develop custom applications in the Exchange environment. The data for

Microsoft Exchange Server 5.5

Pros

- Relatively easy to configure and manage;
- Able to talk to all major LAN-based messaging systems;
- Can support a large number of users through clustering.

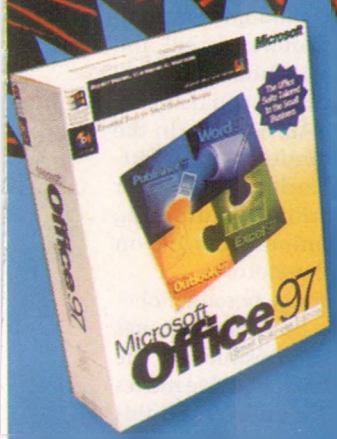
Cons

- Limited multiplatform support;
- Multiple Microsoft applications are required in order to supply the full spectrum of groupware features;
- Replication features are not as advanced as Lotus Domino.

Viewmaster

Why Settle for Less!

BUSINESS POWER PACKAGE



includes

MICROSOFT OFFICE 97

Small Business Edition

(OEM Version)

- Word 97, • Excel 97
- Internet Explorer 4.01
- Publisher 98
- Outlook 98



Business Power Pacl

- Intel Pentium II [illegible]/450 MHz Processor
- Gigabyte 440 BX Intel based chipset Motherboard, Ultra DMA 33 support, Full USB & [illegible] support - 100MHz Blazing Speed!
- 64MB PC100 EEPROM - expandable to 768 Mb
- 6.4GB IDE Hard Disk Drive - Ultra DMA, 33mbps
- Panasonic 1.44MB floppy disk drive
- Gigabyte i740 AGP High Performance 8Mb SGRAM 3D Graphics Ca
- Yamaha 724XG PCI 3D sound card - Superb Sound Quality
- 32X Panasonic CD-ROM drive
- Deluxe Galaxy ATX Wide Midi Tower Case
- Award Winning 17" Viewmaster CromaClear™ SVGA monitor with digital controls, Low radiation MPRII, with 3 Year On-Site Warranty featuring NEC's exclusive Chromaclear™ CRT technology
- Genius PS/2 3 button mouse with scrolling feature
- 500W 3D Sound Speaker System with separate Subwoofer
- Netcomm Internal 56K modem with Voice - famous brand quality
- MS Windows 98 - fully preinstalled
- Hallmark Manufacturers Warranty - 2 Year Full Parts & Labour

Viewmaster computers have been proud suppliers of quality technology products for Australian homes and businesses since 1992 - in fact well over 100,000 systems have been manufactured! Great value products, plus the assurance of ISO 9002 total quality management and the total peace of mind of the Viewmaster brand.

Like our Viewmaster Business Power Package with genuine Intel Pentium II processors - there's more than enough power to handle the toughest business applications. And with the Microsoft Office 97 Small Business Edition you've got all the software you need to get down to serious business...

Great features, Great Quality, Great Price! Call for your nearest authorised Viewmaster dealer today.

intel inside
pentium II

FROM

$2899

RECOMMENDED RETAIL INC TAX
with INTEL PENTIUM II 350Mhz PROCESSOR

Hallmark Computer International Pty Ltd

For your nearest retail outlet contact: (wholesale enquiries also welcome)

MELBOURNE: 10 BLISSINGTON STREET, SPRINGVALE VIC 3171
Ph: (03) 9540 8555 Fax: (03) 9540 8989

SYDNEY: Unit 45, SLOUGH BUSINESS PARK, SILVERWATER NSW 2128
Ph: (02) 9748 8811 Fax: (02) 9748 8866

ADELAIDE: 142 FREDERICK RD, WELLAND SOUTH AUSTRALIA 5007
Ph: (08) 8340 3740 Fax: (08) 8340 3745

DARWIN: Unit 4, LOT 9154, BAGOT RD, COCONUT GROVE NT 0810
Ph: (08) 8948 4451 Fax: (08) 8948 4450

Hallmar
Compute
Internation
is
Quali
Endorse
Compa

ISO9002 Lic.
Standards Aust
Melbourne & Ade

Or for further information check our Web Site: http://www.hallmark.com.au or Email: sales@hallmark.com.au

The Intel Inside Logo and Pentium are registered trademarks and MMX is a trademark of Intel Corporation. Photos for illustrative purposes only. E&OE. Products & prices subject to alteration without notice. *RRP refers to Metro areas only & may vary regionally.

the forms can tie back into any ODBC data type, such as Microsoft SQL server.

Microsoft developed the Collaboration Data Objects with Exchange 5.5. These development libraries are used with Active Server components to write Web-scheduling applications. Online meeting support is provided through the Microsoft Chat service. This is an IRC server that comes as part of Exchange.

Exchange supports SMTP, POP3 and IMAP4 protocol compliant mail client users. Internet news is viewable via Exchange public folders. Outlook users access a public folder to view NNTP newsgroup content and Exchange provides the ability to publish and receive NNTP newsgroups. If a client supports LDAP 3, it can perform lookups on the Exchange name and address book.

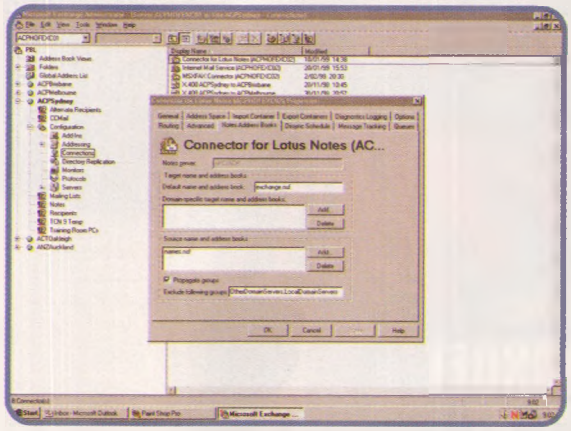
To provide Web access to email under Exchange, you need to install Microsoft Internet Information Server 4.0. Through the use of Active Server Pages, Exchange users can view most of their Exchange information from a Web browser. This feature is known as Outlook Web Access (OWA). Through OWA, any platform that has a browser and supports Java can access an Exchange mailbox. It should be noted that mailbox access using OWA is limited to email and the calendar.

Security

Exchange uses the Windows NT security model to provide user authentication. An Exchange mailbox has a corresponding Windows NT user account. Permissions for mailbox access and administration uses are provided by the Windows Access Control List. Exchange data is encrypted using RPC encryption or SSL over SMTP, if a third-party client is being used.

Microsoft has implemented individual encryption keys in Exchange and these are managed using the Exchange Key Management Server. After Service Pack 1, Exchange clients could use Internet standard X.509 V3 certificates to communicate securely with S/MIME compatible Internet mail clients.

User administration is performed in the Exchange Administration console, which provides a tree-like view of an Exchange site, including server, recipients, and connector and configuration details. All of the configuration parameters for the servers and connectors are set here. Other features such as send-on-behalf and delivery restrictions can be set in the user properties box. The Exchange Administration console can be run from any Windows NT Workstation that has appropriate permissions.



To measure server performance Microsoft has written counters specific to Exchange to be used with the Windows NT performance monitor. Using available reporting tools, it is possible to get detailed reports on messaging usage statistics.

Microsoft has worked hard to make Exchange a scalable product — earlier versions could not handle large numbers of users. The Enterprise version of Exchange will theoretically support an unlimited number of users, dependant only on the hardware. Since Exchange is tied into the Windows NT security model, NT domain sizes become a limiting factor as well.

Migration

Microsoft has provided myriad migration tools to encourage IT managers to move from their aging email systems. cc:Mail, Notes, Internet, MS Mail, Collabra Share and GroupWise mail users can all be migrated to Exchange using the Exchange Migration wizard. This wizard does an excellent job of migrating from these systems using default settings.

On the client side, Outlook 98 imports contact and schedule data from ACT, dBase, CSV files, Lotus Organizer, Microsoft Schedule and SideKick. In its effort to out-migrate Lotus Notes, Microsoft recently released a set of tools to allow the migration or coexistence of Notes applications and databases with Exchange. This process is not 100% successful, as some finetuning using Visual Basic and Lotus Script is usually required.

Windows 2000 (formerly NT 5) will see the long-awaited introduction of Microsoft's Active Directory service; the company's answer to calls for a Metabase similar to Novell's acclaimed NetWare Directory Services. Exchange is the first application written by Microsoft to work natively with Active Directory. This promises simpler management of user and messaging databases. Outlook 2000, as part of Office 2000, promises more advanced team workflow and tracking features.

The next version of Exchange (code-named Platinum) will contain improved scalability, management and clustering features. It will also integrate voicemail and email, so that Exchange can tie into a corporate PABX system. In the interoperability arena, Platinum will include support for HTTP Distributed Authoring and Versioning protocol, an extension to the HTTP protocol.

The Microsoft Exchange-based collaborative environment is best suited to sites with existing Microsoft infrastructure. The wealth of migration tools available makes migration an attractive option, and this alone means Microsoft is taking many installed seats from Lotus and its other competitors. Microsoft reports a number of sites with more than 100,000 Exchange users, while the basic Exchange/Outlook package is also being found installed in small workgroup situations.

Exchange 5.5 is the first version to offer a serious threat at the enterprise level in the groupware sphere. Tied in with all of the other Microsoft components, Microsoft can now go head-to-head with Lotus Notes on features and not come out with egg on its face.

Lachlan Botticchio (MCSE) is a systems administrator at Australian Consolidated Press. He can be contacted at lb@acp.com.au.

Distributor	Microsoft
Phone	132 058
Online	http://www.microsoft.com.au/
Price	Microsoft Exchange Server 5.5, $5,899 (25-client licence); Microsoft Outlook 98, $189
In short	This is the first version of Exchange to pose a real threat to Lotus Notes.

GroupWise 5.5

NOVELL

Novell has added some impressive features to GroupWise 5.5, including improved system administration, a simplified installation process, and the elimination of miscellaneous bugs during installation.

The integration of Internet standards now allows access — using virtually any

Internet client — to all messages, documents, voice mail, faxes, calendar information, tasks and notes from a single, easy-to-use environment.

This means that users can better manage their own work, and can select individual documents, conversation threads, or folders to be shared by other users, groups, or even the Internet via the Web Publisher component. Third-party applications can be added to integrate fax capabilities, a variety of voice mail systems, and also to integrate PDAs (personal digital assistants) and a range of other features.

Installation is a snap, and the installation wizards make it easy enough for just about anyone to plan and install a basic system. Administration is through the familiar Windows NDS administrator tool; everything is tightly integrated into NDS, making daily administration low maintenance.

GroupWise 5.5 has had more than 150 enhancements since Version 5.2. One improvement is the ability to share (read-only or read/write) Personal Address Books, allowing multiple shared address books with non-native GroupWise users. It also has improved Internet mail and attachments handling, which allows users to attach vCards and send embedded HTML documents in GroupWise.

Previously, system administrators had to create complex rules to handle Internet mail. GroupWise 5.5 incorporates those rules, and improved security standards provide support for S/MIME (Secure Multi-Purpose Internet Mail Extensions), making it compliant with the Defense Messaging System (DMS) standards which were set up by the US Department of Defense to provide high-level data encryption and security for Internet messaging.

Novell GroupWise 5.5

Pros

- Easy for end users to learn;
- Easy for system administrators to manage;
- Tightly integrated into NDS.

Cons

- No NNTP support;
- Less third-party support than Notes or Exchange;
- Relatively difficult to modify; there is no custom forms creation.

Components

Among other things, GroupWise 5.5 comprises messaging, calendar, to-do list, notes, proxy access, document management, workflow and remote access components. The GroupWise 5.5 client software is available for 16-bit and 32-bit PC, Macintosh and a host of Unix platforms. It should be noted that functionality is severely limited on 16-bit Windows.

It is necessary to have at least one NetWare server (Version 4.1 or higher) in order to install and manage GroupWise 5.5. The server side of GroupWise uses an MTA (Message Transfer Agent) and POA (Post Office Agent) to process information. GroupWise is structured around the concept of Domains, Post Offices, and Gateways. A basic system would comprise a single Master Domain and a single Post Office, while a more complex

$44 a month for 100 hours of Internet access.

(A small price to pay to Express yourself.)

At Mira Networking, we recognise that there are many kinds of Internet users.

We also believe that the amount of time you spend on the Internet should not be limited by the size of your income.

*So now you can enjoy up to 100 hours of Internet access each month for just $44 a month with our special, satellite-fed NetExpress pricing plan.**

As a Mira Networking Customer, you'll also enjoy:

- *a 7 day a week Help Line, with friendly technical support staff*
- *a "no busy signal" policy*
- *no time limits on log-ins*
- *rapid connections and downloading of data*
- *a range of pricing plans that are simply great value.*

Call us today. We'll help you express yourself.

MIRA NETWORKING
Established 1991

Melbourne Sydney Brisbane Adelaide Perth
Email: sales@mira.net
Phone: 1300 360 080
Website: www.mira.net

**$20 joining fee, with automatic credit card debit billing only. A $2 per hour charge applies each month after the limit of 300MB of download or 100 hours is reached.*

MIR025/LAD

system might have several domains and post offices distributed across buildings, states, or countries, and gateways into things like X.400, Exchange and so on. The MTA, POA and WebAccess components can run on any combination of NetWare, Unix, or Windows NT servers, although they run as a program rather than a service on NT.

GroupWise is most suited to environments that use NetWare as a file and print server base. In such environments, GroupWise requires fewer hardware resources than Notes or Exchange, which would need additional Unix or NT servers to run. Typically, GroupWise can reside on the same NetWare server used for file and print sharing, often requiring only minor RAM and hard disk upgrades. Novell has benchmarks showing a single NetWare server with a Pentium 166 and 256M RAM running 200,000 users and a throughput of at least 1 million messages a day. It is very well scaled to handle multiple sites connected via WANs and standard telephone lines.

Although GroupWise 5.5 is a feature-packed product out of the box, it does lack some of the flexible, additional enhancements of Lotus Notes, and it has far fewer third-party plug-ins than Microsoft Exchange (31 compared to 311, according to Microsoft). Although it is slightly more difficult to implement, an experienced programmer can make modifications with the SDK.

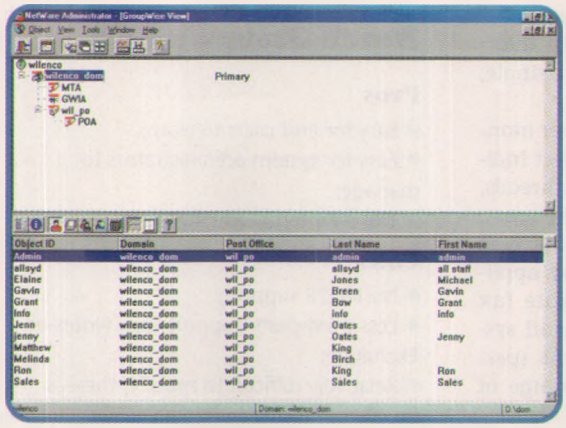
GroupWise 5.5 provides a sophisticated electronic messaging backbone that goes beyond what many people think of as email. Among other things, different priority levels allow high-priority messages to display with a different colour in the recipient's inbox and, unlike Internet mail, are handled on a higher priority basis by the message server.

On the downside, it is not possible to set disk quotas for end users, which allows them to have potentially large and difficult-to-manage mailboxes. It's possible to force an auto-archive or auto-deletion, but this isn't always appreciated.

Standards

The GroupWise Internet Agent provides full POP3, IMAP4, SMTP and LDAP compatibility, allowing end users to access mail with standard Internet mail programs including Netscape Communicator and Outlook Express.

It is possible to look up entries in address books using LDAP, and view items stored in personal or public folders with IMAP4.



GroupWise 5.5 also supports messages with embedded sound, graphics, HTML and vCards much better than previous versions.

Several products such as Netscape Messaging Server and Pegasus Mail offer plain old email on a NetWare server. But what puts the 'Group' in GroupWise is its ability to share and collaborate with others through PIM (personal information manager) features such as a calendars, to-do lists, notes, discussion threads, shared folders and address books. 'Proxy' access can be set up to calendar, mail and tasks for users or groups within an organisation allowing restricted access.

The document management features of GroupWise allow users to save documents in a document library that can be shared with users or groups quickly and easily. The new WebPublisher feature also allows any of these documents to be automatically published to the Internet/ intranet in HTML format, empowering even the least computer-literate person to become a Web publisher.

GroupWise 5.5's Workflow component is worth investigation if only to streamline and reduce paperwork. It allows the elimination of much of the transit and processing time associated with traditional paperwork — particularly in a large organisation — by using electronic signatures. As with any item in the Universal Mailbox, it is also possible to tell the status of a message at any time. You can, for example, find out where a purchase order is being held up and phone or email the transgressor to expedite the process.

There are several ways to remotely access a GroupWise system. The remote client allows offline use of a GroupWise system and is an efficient way to work if you use a notebook. A standard PPP connection or Novell's proprietary ASYNC gateway can be used to synchronise your remote system.

Although GroupWise 5.5 contains significant improvements, it still lacks some useful features. These include: the ability to add documents to the document library using a Web browser; restriction of the size of incoming and outgoing Internet messages; the ability to use Microsoft's Outlook Client to work with calendar, tasks and notes; and NNTP support for shared folders to allow any Internet news client on the Internet/ intranet access to discussion threads. It could also do with vCalendar scheduling standard support for interoperability between other PIM/Groupware products; iCalendar support to provide interoperability between other PIM/ Groupware products' free/busy searches; full clustering support on NetWare 5; more third-party applications; better contact management features such as those found in programs like Symantec's ACT. It also lacks an easy-to-use form design tool to make custom forms; more sophisticated document management functions and options to use other third-party document management products with GroupWise; and the inclusion of Novell and Netscape Web server software and all Java component support.

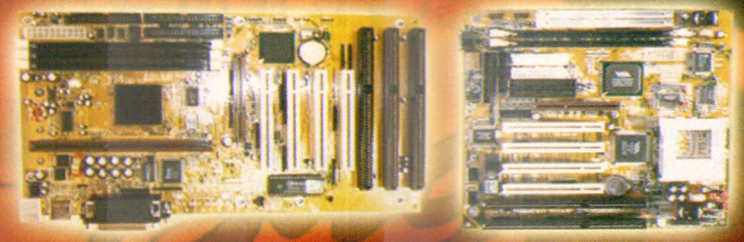
But overall, the features, reliability and scalability of the GroupWise products are impressive. It is generally easy to install, maintain, learn, use and administer. GroupWise 5.5 supports all of the basic features necessary to increase productivity and encourage team collaboration. At the end of the day, it boils down to whether the product can improve user productivity without putting a heavy strain on IT staff. In the case of GroupWise 5.5, the answer is yes.

Ronald Rosenbaum is a senior technical consultant at Advanced Technical Solutions. He can be contacted at ron@ats.au.com.

Distributor	Novell
Phone	1800 244 364
Online	http://www.novell.com/groupwise/
Price	5 users $1,485, 10 users $2,938, 25 users $7,198, 50 users $14,095, 100 users $27,592, 250 users $67,482
In short	A powerful, easy-to-use and manage product that enables users to work together more efficiently.

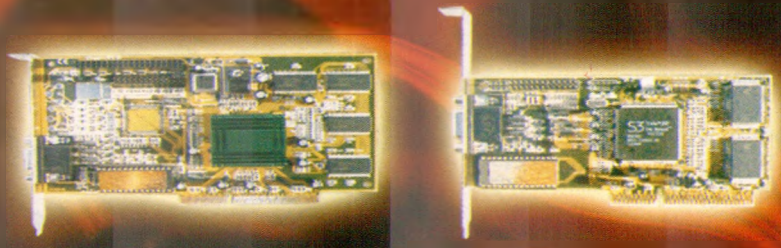
EAGLE

ESPCO COMPUTER



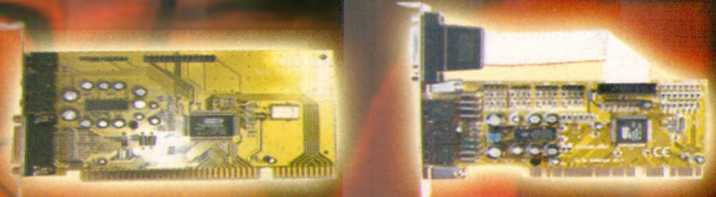
MOTHERBOARD

EAGLE - BX MOTHERBOARD (AT/ATX)
EAGLE - ZX MOTHERBOARD (AT/ATX)
EAGLE - MVP3 SUPER SOCKET 7 MBD



DISPLAY CARD

EAGLE - TRIDENT 9880 AGP VGA CARD
EAGLE - TRIDENT 9750 AGP VGA CARD
EAGLE - INTEL I740 AGP VGA CARD
EAGLE - SIS 6326 AGP VGA CARD
EAGLE - S3 365 TRIO AGP VGA CARD
EAGLE - S3 375 VIRGE PCI VGA CARD



SOUND CARD

EAGLE - ESS 1868/1869 ISA SOUND CARD
EAGLE - ESS 1938 PCI SOUND CARD
EAGLE - YAMAHA 724 PCI SOUND CARD

ESPCO COMPUTER (AUSTRALIA) PTY. LIMITED
PHONE : (02) 9906 3100 FAX : (02) 9906 3374

Looking for alternatives to packaged groupware? It's possible to tailor a solution to meet your business requirements. **By Brad Thurkettle**

DIY groupware: We have the technology

The term 'groupware' is applied to packages that assist people to work together better. The most popular groupware application is email, but there are many others including calendaring and scheduling, online conferencing, discussion groups, document management and workflow. In the table on page 125 we've summarised various possible groupware solutions from the most basic, right up to the big three proprietary commercial systems already reviewed here in detail.

At the lowest level, an individual or small organisation can get away without having a groupware server; all that's needed is Internet access. An email address can be obtained from a Web-hosted email provider such as Hotmail or Yahoo, which can also set up limited online calendar services. You can create discussion groups using Web-based list providers such as Coollist (http://www.coollist.com/). There are also Web-hosted chat sites where private business conferences can take place, and you can use other free Internet tools like ICQ for conferencing. Bear in mind, though, that some of these providers don't allow commercial organisations to use their resources.

The advantages of Web-hosted solutions are cost and simplicity, but the disadvantage is that you are dependant on your Internet connection, and it doesn't look professional having your company address at a Web host.



Naming rights

The next step is to have your own domain name, so you can have addresses like bob@mycompany.com.au. Having your own email address means you need good client software. One option is Outlook 98, which is part of Microsoft Office. This connects to any Internet email account and includes a calendar for scheduling and a journal for document tracking. Meeting requests can be sent by email without the need for a specialised server and confirmed meetings are entered into the calendar.

Monthly fees for email accounts and a lack of an organisation-wide directory of email names and addresses make individual email accounts with an ISP suitable only for small organisations without inhouse expertise.

The last step is to set up your own groupware server — your choice may be influenced by your operating system preference. Most groupware applications run on Windows NT and some varieties of Unix. Not surprisingly, Microsoft Exchange runs only on NT. GroupWise is tied to Novell's NDS which runs native on NetWare, but it can work with Novell's NDS for NT, or NDS for Solaris, or Caldera's NetWare for Linux.

Linux is an example of open source software — its source code is available free to be used and possibly improved and redistributed by others. There are many open source solutions available to help you start building a groupware server. Examples other than Linux include Apache's Web server and Netscape's Mozilla. Linux-based systems are very do-it-yourself, and require significant expertise — installation and configuration of such systems is not a simple affair if you've never used Unix. So if the only experience you've had is setting up an NT server and installing productivity applications, you would be best advised to spend time familiarising yourself on a test server before deploying a production server.

Another advantage of open source's cost is that because user numbers are unlimited, you can add users and email accounts without needing to track how many licences are in use. Reliability is also very good.

Groupware alternatives: Scale to suit

Solution	Examples	Capabilities	Costs	Advantages	Disadvantages	More information
Free Web-based hosts	Hotmail, Yahoo, Netscape Netcenter, Coollist, ICQ*	Basic email, discussion groups, calendar conferencing	Internet access	Low cost, no internal server required, no hardware or server software costs, only browser software required	Cannot use your own domain name, no central directory listing of users, Internet access required, limits imposed by host, increased Internet access charges if paying $/M, unwieldy/unprofessional for medium to large companies (25 employees)	http://www.hotmail.com/ http://www.yahoo.com/
ISP hosted email accounts	Most ISPs	Basic email, discussion groups, shared calendars, conferencing, Web servers	Extra email accounts from $5 to $10 per month on top of Internet access	No internal server required, no hardware or server software costs, choice of groupware clients, can use domain names	Can be expensive for medium to large companies (25 employees), ties organisation to that ISP making it difficult to change ISP, Internet access required for internal email, increased Internet access charges if paying $/M	http://www.bigpond.com.au http://www.ozemail.com.au
Open source solutions	Linux, sendmail, Mozilla, Apache	Basic email, discussion groups, shared calendars, conferencing, Web servers	Server hardware, Internet access	Free server and OS software, number of users/accounts only limited by capacity not licence, many solutions can mix-n-match products, good support via Internet newsgroups and Web pages	Requires inhouse or hired expertise to set up and administer, support from professional companies rare	http://www.linux.org/ http://www.mozilla.org/
Commercial Internet standard based solutions	Netscape SuiteSpot servers, Sendmail Pro	Email with directory, discussion groups, shared calendars, conferencing, Web servers	Server software and hardware, Internet access	Usually cheaper and scales better than proprietary solutions, speaks native Internet protocols so no need for gateways to Internet, mix-and-matches with other Internet protocol products	Licence costs per user, requires inhouse or hired expertise to set up and administer	http://www.netscape.com/suitespot/
Proprietary solutions	Exchange, Notes, GroupWise	All-in-one client, single login, email with browseable directory, document management, workflow control	Server software and hardware, Internet access, server OS costs	Well supported by suppliers, setup usually simpler and there are numerous trained personnel that will be familiar with the system, incorporates most groupware features, includes custom client software	Most expensive option, licence costs per user, Usually tied to supplier's OS, inability to mix clients and servers, reliant on primary supplier to supply that feature, requires gateway software to connect to Internet (now shipped as standard), features specific to that solution may not work when communicating with other servers, hardware requirements usually larger than Internet standard based systems	http://www.microsoft.com/exchange/ http://www.lotus.com/notes http://www.novell.com/groupwise/

* Not Web-based but a free service

Zip in... Zip out

The Electronic Time & Attendance Revolution!

SET UP A SPECIALIST CONSULTANCY
The Zipnet Timesheet bundle is a natural for specialised marketing.
Interested? Give us a call!



Government Endorsed Supplier
Supporting Australian Business

With ASP's ZipNet Terminal and Timesheet Software, staff clock in and out with their own permanent barcoded staff card. No more time cards to buy, no more cards to check. Data is automatically collected by the administration PC. Workplace rules are applied by the computer to produce time summaries for optional export to payroll software. Add extra Terminals at any time.

AUSSIE MADE AND UNDER $1,500 COMPLETE!
(Terminal, Software, Cable, 15 Cards).

For a FREE evaluation copy of Timesheet, visit our Web Site, or call, fax or email.

asp
asp data collection-
automatic, simple, perfect.



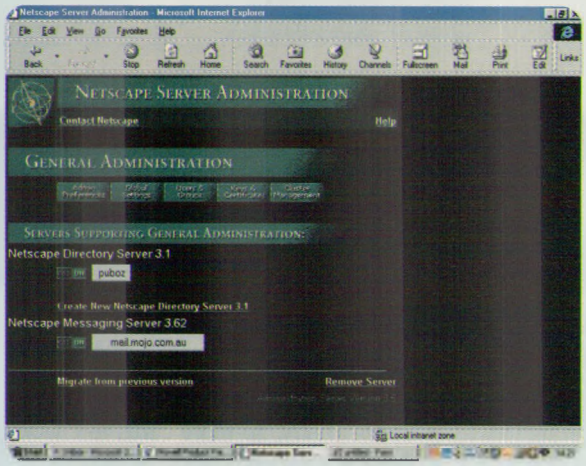
456 North Road, Ormond VIC 3204 Telephone (03) 9578 7600 Fax (03) 9578 7727
email: solutions@asp.com.au www.asp.com.au Dealer enquiries welcome.
22 years of innovative solutions.
3533GGG ASP2/99

A real world implementation

About two years ago our organisation, Publicis Communications, was looking for a groupware solution to service 150 users spread over three locations. To this end we created a list of criteria for our preferred solution. It would have:

- One system for internal and Internet email;
- A central directory for usernames and email addresses, preferably browsable;
- The potential for remote network managers to administer their own users and be easy to install and manage;
- Minimal hardware requirements — preferably one central server without any need for servers in each branch office;
- Interoperability; we needed a cross-platform solution that wouldn't tie our organisation to one OS.

We looked at Exchange, Notes and Netscape SuiteSpot as possible solutions.



Exchange and Notes were about $15,000 and $20,000 respectively. The full Netscape SuiteSpot servers were about the same price, but at the same time allowed for the purchase of SuiteSpot Messaging Server bundled with a Directory Server for roughly half that, and an upgrade to other components such as the Calendar server and Collabra server later.

Notes offered a much more sophisticated development environment than the other solutions, but without the budget or expertise to implement these features it seemed to be overkill.

Netscape allowed downloading of fully functional software from its Web site, and we were able to begin testing immediately. There were no features disabled and we could evaluate it for 90 days before purchase. Based on the requirements listed above and better pricing, we went with Netscape.

We have 150 users on a Dell PowerEdge 2200 with Pentium II 233MHz, 128M RAM, 8G hard disk drive, Windows NT 4.0 SP4, running on 100Mbps Ethernet. It is running Netscape Messaging Server 3.62 and Netscape Directory Server 3.1.

We use Outlook 98 on Windows 95 PCs and Outlook Express 4.5 on Macintoshes. Users do not have a full browsable list of other users, but they can search for internal users with the LDAP search tool in Outlook, and search any of the Internet LDAP directories. Outlook 98 also allows our users to send Meeting Requests via email internally or to external clients, which become bookings in their Outlook Calendar when accepted. Users can also share calendars and address books.

Administration can be done from anywhere using any Web browser with appropriate passwords. Handling of multiple domain names and email addresses per account is standard. The Netscape solution does not rely on the NT domain structure, so it was not necessary to purchase a 150-user NT licence — a cost saving over Exchange. We will probably not upgrade to the Netscape Calendar server as the Outlook 98 client can handle most of the scheduling issues. For online conferencing we are investigating Microsoft NetMeeting.

On the wish list is a single login via an integrated directory for groupware, file and other services. This may be achievable soon, with the push for Directory Enabled Networking via Novell's NDS and the promise of power from Microsoft's Active Directory.

The solution described above is not necessarily the best. Rather, it's an indication of what was suited to our needs and budget.

Brad Thurkettle

Standards are another important feature to look for in a groupware solution. Internet standards are the protocols used by servers on the Internet, protocols such as SMTP, POP3, IMAP, LDAP and MIME. This is important when email is exchanged over the Internet. Some servers that use their own protocols internally need to translate messages between their internal format and a format suitable for transmission over the Internet. These translations can cause problems and result in a bottleneck, particularly with large installations. You should also be looking for Internet standards to ensure the highest possibility of the software working with other packages you may need.

Crossing boundaries

Beyond open source software are commercial implementations of Internet standard solutions. Examples include Netscape SuiteSpot servers and Sendmail Pro. Licensing of these solutions is usually per server based on the number of users. They cross the territory between open source and proprietary commercial solutions, with the common ground being their native implementation of Internet standards.

The proprietary (Exchange, Notes, GroupWise) solutions usually rely on bundled gateway software to connect to the Internet. Their advantage over open source is that they're from an organisation that can provide support services such as maintenance contracts and training courses funded by their licence fees.

These three big commercial groupware applications have a lot going for them. For starters, they are fully supported. They offer features not found on the standard Internet-based solutions, and there are many third-party products that provide additional features. Importantly, many trained integrators can support them; you won't get blank looks when you mention that you run Notes, Exchange or GroupWise.

The downside? Cost. Even for volume purchases, licence fees of over $100 per user are common. Plus hardware requirements are usually higher than for Internet standard solutions — the big three would probably run about 500 users per server, whereas a similar Internet standard server could handle 5,000 users.

Brad Thurkettle is national IT manager at Publicis Communications. He can be contacted at thurkettleb@publicis.com.au.

Workshop

Welcome to Workshop, the section dedicated to bringing you all manner of tips, interesting information and do-it-yourself tutorials. Within these pages you will find useful shareware, informative operating-system-specific columns and easy-to-follow programming tutorials.

The response to the Pocketbook series has been phenomenal and we have a whole range of topics planned — from networking to Webmastering and publishing. If there is a specific topic you'd like to see covered in Pocketbook format, email **amills@acp.com.au** and let us know!

Tech Talk 129

Technobabble explains networking protocols, and Step by Step presents some tricks to get more from your digital camera.

Operating Systems 135

Windows 98 explores the Windows Update online facility; OS/2 Warp examines MMPM/2 and the multimedia applications bundled with the operating system; Mac OS delves into the new AppleScript features of Mac OS 8.5; and Linux does some clockwatching.

Programming 145

C++ describes how variables are used, and Java completes its digression into the world of client/server applications.

Shareware Summary 152

All the files mentioned here can be found in the Workshop section of this month's **apcmag.cd**.

Win! Win! Win!



Workshop is always on the lookout for the most interesting, strange, funny or downright weird software bugs you can find. These include code snippets, examples of features that function poorly, or procedures for crashing a particular application. Anything and everything that is buggy deserves mention.

Send us your favourite bug via email to bugs@acp.com.au or snail mail, and you'll be in the running to win your choice of **development or application software** from Workshop's prize cupboard. The prizes change each month to ensure there's always something interesting for avid bug-hunters. Please send screen captures, example code listings or detailed instructions to trigger a bug in an application, as appropriate for your entry.

The winner's name, along with details of the bug, will appear in the Bug of the Month column in the June edition of *APC*. So start hunting!

Get involved

All files mentioned in Workshop can be found on **apcmag.cd** or downloaded from our Web site at http://apcmag.com/. You can join one of our online discussion forums to discuss technical issues or just voice your opinion on any related topic.

Workshop is a reader-input section. Please send us your ideas, comments or criticisms via email to workshop@acp.com.au, or snail mail to *APC* Workshop, PO Box 37, Sydney NSW 1028.

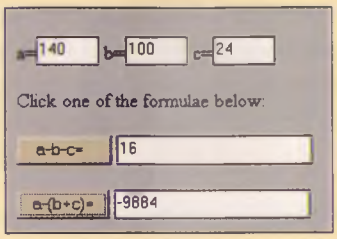
Ashton Mills and Stephen Withers, Workshop editors



Bug of the Month

2000 zero zero party over, oops, out of time
So 2night I'm gonna party like it's 1999
— Prince (or whatever he calls himself these days)

Finding date-related bugs in software this year is not the hardest thing you'll ever do. They're appearing with monotonous regularity — annoying just about everybody (except people like me who get paid lots of money to fix them). But this month's bug, submitted by Robert Mapson, is just a little special: Robert's found a date-related bug in his Y2K testing software.



Our hero downloaded a utility from the Acer home page to validate his computer's BIOS. The BIOS was OK, but the utility was a little dodgy. The output looked something like this:

Acer Bios Version Detect Utility (Version 1.0)

Acer Bios Version: V2.0
Acer Bios Revision: 01-F2
Acer Bios Release Date: 51/0-/2060
Acer Bios Model ID: ACR16
Acer Bios Serial No: ACR1600-M07-960510-R01-F2

Now about that release date . . .

If you look carefully you'll see that the utility has pulled the release date out of the serial number, but offset by one.

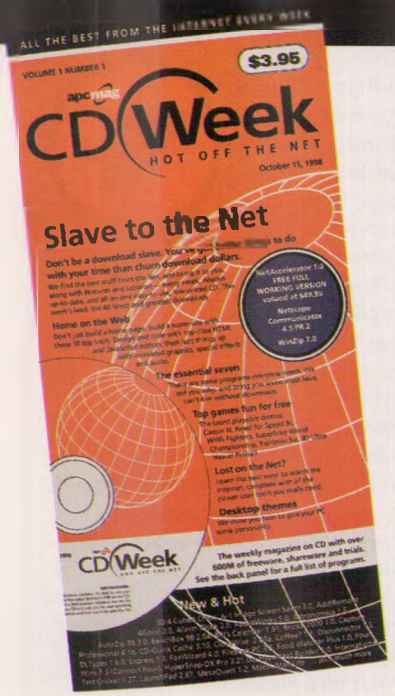
Still, Robert can now rest easy that his BIOS is OK because this utility would have been thoroughly tested — wouldn't it?

For his pain and suffering Robert wins one of our great Workshop software prizes, but we'd better ship it quickly so he gets some use from it before December 31 — just in case.

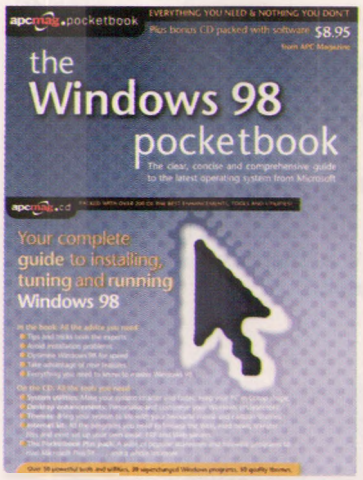
Michael Smith

Check out these introductory specials now available

http://apcmag.com/shop



apcmag.shop





CD Week: All the best from the Internet every week on CD. Browse and buy this week's issue or any available back issue for just $3.95, shipped to your door. Or try out this new weekly CD magazine — airfreighted nationally to your door every week — for 3 months (12 issues) for just $29.95. That's a 36% saving. Subscribe for a year (48 issues) for just $120.

Pocketbooks: The cross between a magazine and a book which has everything you need and nothing you don't. You can buy current Pocketbook titles and place advanced orders for upcoming releases to get them hot off the presses and delivered to your door for free. Current titles available for order include Windows 98 and the upcoming Linux and Mac Pocketbooks.

APC Magazine: You can subscribe to the three-way APC online with our new improved system for just $65, and have the magazine and cover CDs delivered every month to your door. Plus browse through and order from available back issues of both the magazine and apcmag.cd issues. If you missed that key CD or issue, here's your chance to complete your collection.

So go to http://apcmag.com/shop today!

Subscriptions are also available.

Phone toll-free
1800 252 515
or international
612 9260 0091.

Australian Personal Computer

CD Week HOT OFF THE NET

apcmag.pocketbook

Workshop

Get to know your favourite protocols a bit better.

By Nathan Taylor

Technobabble

A large number of network protocols have been developed since the first computer networks appeared. Many of these were proprietary solutions such as DECnet and to an extent token ring. The latter may have had many technical merits, but it failed to achieve broad acceptance. Others were developed with versatility in mind, but have since been cast into very specific roles. Fibre Channel, ATM and even SCSI have capabilities beyond those for which they're commonly used — ATM is more than just a fast network technology, while SCSI and Fibre Channel are more than just disk interfaces. For others, such as the Fibre Distributed Data Interface (FDDI), interest simply waned in the face of technology that was cheaper or easier to implement.

Of the many protocols developed over the years only a few have really become standards, and they now dominate the networking world. In the LAN/layer 2 space, Ethernet is by far the dominant standard. At the third and fourth layers of the OSI model, IP and TCP dominate. Token ring and IPX/SPX are fading now, but were prevalent in the past. Then there is the young upstart ATM, which so far has failed to realise its potential, but does have a lot to offer.

Note: I'm assuming you've read the past three Technobabble articles. They lay the groundwork for this month's discussion, so if you missed them see **apcmag.com**.

Layer 2 protocols

Ethernet is not an elegant or efficient layer 2 protocol, but it works, it's cheap and it's easy to set up. As a result it is the most dominant LAN technology in use today.

Created in 1973 by Xerox, Ethernet was originally known as DIX (DEC, Intel, Xerox), but the standard is now controlled by the Institute of Electrical and Electronics Engineers. The way Ethernet works is best described as anarchistic. Lines are shared between nodes by an essentially first-in, best-dressed method.

The technical name for this is Carrier-Sense Multiple Access/Collision Detection (CSMA/CD). A computer that wants to send a message on the network must listen in to the cable and wait for a break in the traffic. When it detects a break, it can send a small chunk of data out onto the line. If it detects a collision with data on the line, it will cease transmission and wait before trying again. It works best when packets are small. On very congested networks, CSMA/CD can cause problems, because frequent collisions force a lot of retransmissions and delays.

Other methods of collision detection have been proposed and used at times, although not in standards-based Ethernet. AppleTalk, Apple's network protocol, uses a method called CSMA/Collision Avoidance (CSMA/CA) to overcome collision issues. Intel proposed CSMA/Deterministic Collision (CSMA/DC) which switches to a Time Division Multiple Access (TDMA) system when collisions occur. TDMA systems are commonplace in telecommunications — time slices are allocated to devices on the network, enforcing rules that prevent collision. But this can create redundancy. There's also CSMA/Collision Elimination, which uses another slightly different algorithm based on priorities to determine who gets to use the line.

Ethernet usually runs at 10Mbps across twisted pair copper wires (10Base-T), and at different speeds across various types of coaxial wire (including 10Base-5 or 10Base-2). In reality, a 10Mbps Ethernet network runs at about 4Mbps across most corporate networks. The number of addresses supported by Ethernet is usually 48 bits, so a large number of clients can be supported on an individual network.

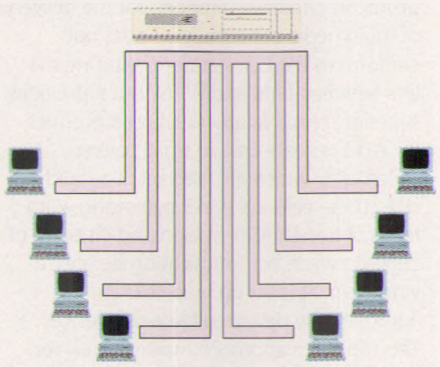
There are also standards called Fast Ethernet (100Base-T) and Gigabit Ethernet, which are backward compatible but support far higher packet rates than 10Mbps Ethernet. These were developed simply because the hardware was developed to support higher speeds. Fast Ethernet runs at a theoretical 100Mbps, while Gigabit runs at 1,000Mbps. The latter is usually too expensive to go to the desktop, and is used for backbones (line segments which connect sub-networks and are expected to carry most of a network's traffic). Hewlett-Packard developed a proprietary equivalent of Fast Ethernet called 100Base-VG, but it has almost disappeared with the wide availability of Fast Ethernet.

Token ring remains a good technology that was never really implemented as widely as Ethernet, despite IBM evangelising the technology. Designed in 1969 by Olof Soderblom, it has fallen into obscurity today, but it is still used as an example of how a ring topology might be formed.

Instead of letting devices try to find their own free space on the line, token ring uses an electronic token that is passed from device to device in a ring. The token notifies the computer that it has permission to communicate and gives the device a chance to add information to the network. If it adds information to the network, the token is set to 'busy'. It then navigates the ring, and delivers data to the correct recipient before returning to the sender to indicate the data has been sent. The sender then frees the token and it begins to circuit the ring again.

This obviously eliminates contention issues, and can deliver a bandwidth of 4Mbps to 16Mbps between devices on the ring. In its most common implementation, it uses twisted pair wiring and up to 255 devices can participate in the ring.

Token ring wiring concentrator



The topology of token ring networks is actually a collapsed ring that looks like a physical star. Each device is connected to a token ring wiring connector by a twisted pair cable with two wire pairs, one for inbound traffic and one for outbound traffic.

Layer 3 and 4 protocols

TCP/IP The Transmission Control Protocol/Internet Protocol (TCP/IP) is the most commonly known protocol. It is the most important protocol in existence today, as it drives the Internet.

It is actually a family of protocols governed by the Internet Engineering Task Force (IETF), and it is constantly patched and re-engineered by the group. It can be broken into two broad parts — IP, which controls the layer 3 aspects of transmission, and TCP which deals with layer 4.

IP's key task is to take care of addressing on TCP/IP networks. In the most commonly used version, IPv4, addresses are 32 bits long, usually represented by four 8-bit values separated by periods (for example, 203.18.241.20). This value can be further split into two parts: the net ID, which describes which subnet a device belongs to; and the host ID, which is the individual address of that device of the subnetwork. There is usually a 16-bit segment of the address devoted to each, although this can vary. The purpose of a subnet mask, which you often have to enter when setting up TCP/IP on a computer, is to describe how many bits are assigned to the net ID and host ID.

Each device on the network is assigned an individual IP address, enabling other devices to find it from anywhere on the network. IPv4 is restricted to 4.3 billion addresses. This sounds like a lot, but when you consider the likelihood of every person and every electronic device being connected to the Internet, you realise valid addresses will run short. This is why IPv6 was invented. IPv6 expands the address space to 128 bits, presumably more than we'll ever need. Clever engineers have found ways around IPv4's limitations. For instance, they have created subnets with 'fake' IP addresses that do not officially exist on the Internet, but are routed through a proxy which translates the IP addresses. Consequently, the uptake of IPv6 has been slow.

Although numbers are useful for computers, they aren't very human friendly. For this reason the Domain Name System (DNS) was devised. The task of the DNS was to translate normal words (such as www.yahoo.com) into IP addresses that routers delivering packets could understand. A system of DNS servers was set up, essentially providing directories of domain names (the words) into IP addresses. In fact, these servers are something of a network unto themselves; if one DNS server does not know the IP address of the requested domain, it will pass the query on to the next. When you set up your computer to connect to the Internet, one of the most important tasks is to point your computer in the direction of the nearest DNS server, so that it can look up these requests (if you don't, then you'll be typing in IP addresses manually; type 203.18.241.20 into your browser and see what happens).

TCP is the most common layer 4 partner to IP. Like IP, it was designed for ARPANet (the predecessor to the Internet) in the early 1970s to provide a stable transmission service. TCP ensures packets arrive in sequence, discovers errors in packets, and requests retransmission if there are errors or if a packet doesn't arrive.

Although you won't see it often, there is actually no exclusive arrangement between TCP and IP. For instance, a protocol called User Datagram Protocol (UDP) is often partnered with IP addressing, for a system known as UDP/IP. UDP works differently to TCP as it is a 'connectionless protocol'. TCP requests a receipt recognition for each packet that is sent; if it does not receive one, then it resends the packet. UDP uses a 'send and pray' method instead that cuts down on network traffic, but is far less reliable. UDP is becoming increasingly important as companies start broadcasting multimedia across the Web and receipt notification packets become a burden with many clients receiving the data.

The IETF has defined over 100 protocols and standards which fall under the broad banner of TCP/IP. Included are standards for getting it to work over nearly every conceivable type of network. This is because TCP/IP is, and will remain, the most significant networking protocol. Its only real challenger at this stage is ATM (which TCP/IP can also run across), but this won't happen for some time.

IPX/SPX Although it has been written off by nearly everybody, including its creator, Internetwork Protocol Exchange/Sequenced Packet Exchange (IPX/SPX) remains prominent because it has such a huge installed base. Developed by Novell for NetWare, IPX/SPX was the dominant protocol in the late 1980s and early '90s, until the Internet and TCP/IP came to take its mantle. It is still widely supported in both routers and software.

IPX is the layer 3 part of the duo, and works similarly to IP, providing an addressing and routing system which connects devices across internetworks. SPX is equivalent to TCP, providing packet sequencing information and transmission assurance.

Next month: Know your Internet.

ATM: The protocol of choice

Completely different rules apply for telecommunications providers. The world's largest networks all belong to telcos, and they need special technologies to deliver services to the tens of millions of clients connected to their networks. Technologies such as SONET/SDH are used to deliver massive bandwidth to far-flung locations.

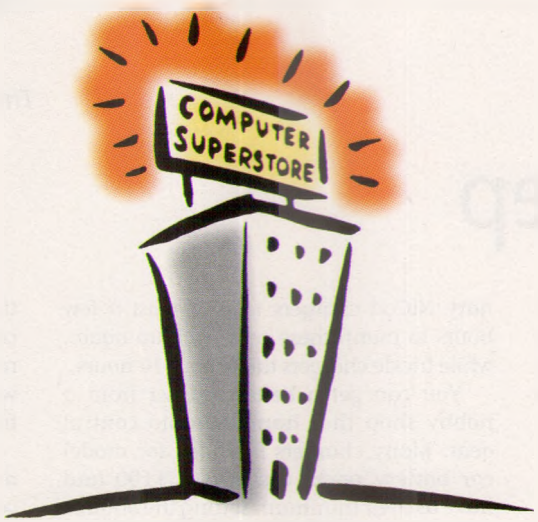
One of the most important developments by telcos was asynchronous transfer mode (ATM), a set of elegant protocols originally designed for the delivery of multimedia content. ATM does not conform to the OSI standard, blurring the line between LAN and WAN, but it provides superior service to any OSI-based product.

ATM delivers data in small packets, called cells, which are fired off at a rapid rate. These cells are all 53 bytes long, with 5 bytes of header information and 48 bytes of data. Between communicating devices, a virtual circuit is set up, and cells are automatically delivered between devices. This rapid-fire approach makes it ideal for handling low-latency communications such as live voice conversations and video.

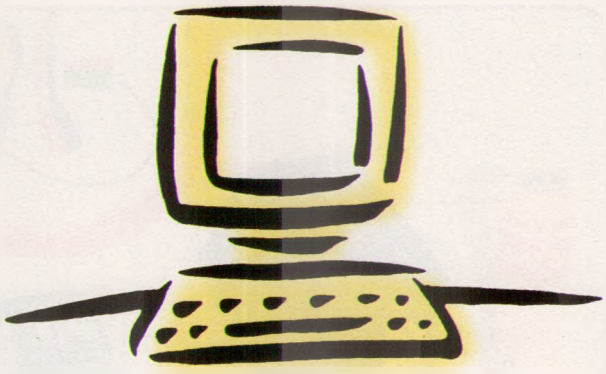
Just as important is ATM's class of service definition. A virtual circuit, once set up, can have a class of service assigned to it, such as constant bit rate services or variable bit rate services. These services can guarantee bandwidth levels between devices or indicate that there are no specific bandwidth requirements and to simply use what is available. Unfortunately, in the real world, these features are rarely used, and ATM is most often used as a high-bandwidth backbone service.

ATM was originally designed to work on optical fibre networks at speeds of 155Mbps or more, although work has been done to get it to work over copper wires at 25Mbps for desktop systems. This work includes LAN Emulation (LANE), which enables traditional protocols such as IPX and TCP/IP to work over ATM. Although LANE is not as efficient as pure ATM, it is essential for backward compatibility.

ATM products are expensive because of its hardware requirements, so it is unlikely to be used by anyone other than telcos and large companies for some time. However, ATM is one day going to be the protocol of choice for all networking.



Why pay for all this...



...when all you want is this?

E-Store is your one-stop, computer shopping superstore on the Internet. For a start, we don't waste time or money on expensive store fronts, or rhetorical advertising spiels (after all, costs like those are inevitably passed on to you). So here goes:

Guaranteed Lowest Prices. We guarantee Australia's lowest prices, or at the very least, we'll match any genuine advertised price from any authorised reseller.

Returns Policy. If there is a fault with any product or you're not completely satisfied with a purchase, we are more than happy for you to return it. In fact, we ourselves will pay for the product(s) in question to be returned.(conditions apply.)

Security. Using the latest and tightest encryption technology available, we guarantee our site is 100% secure. By the way, we don't keep a record of credit card numbers.

Payment Options. We're pretty flexible: 6 months interest free instantly available (to approved customers), credit card, business account or rent. Whichever suits you best.

Top Names. We only deal with the best - Your IBMs, your Compaqs, your Toshibas, your HPs - you'll find them and all the other top names at E-Store.

Huge Range. Whatever you're after - PCs, notebooks, work stations, servers, printers, modems, scanners, up-to-the-second software - you'll find it among the more than 30,000 lines we offer.

Delivery. Like everything else with E-Store, you'll find delivery fast, safe and completely traceable on-line.

E-STORE

www.estore.com.au

Shop around, buy from us.

The nitty-gritty of digital photography.

By Daniel Rutter

Step by Step

There are some tips and tricks specific to digital photography, and if you know them, you'll be able to get a lot more out of your digital camera.

Better batteries

All digital cameras eat batteries much faster than film cameras. Many digital cameras run from AA cells (a battery comprises two or more cells), usually four of them, and they're renowned for draining a set of alkaline cells after less than an hour of shooting. My Kodak DC120's current draw varies from 200mA (milliamps; 1,000 milliamps make one amp) when it's turned on but not doing anything, to about 1.2A when its LCD is active. It can peak at about 2A right after taking a picture.

According to the specs, an AA alkaline cell has a capacity of about 2.4Ah (amp hours). It should be able to deliver 1.2A for two hours before going flat. Why doesn't it? Alkaline capacities are quoted based on a 'C/20' load — a load that flattens the cell in 20 hours. When a 2.4Ah cell is asked to deliver more than 10 times C/20 by a camera, its voltage drops and its life is greatly reduced. Newer types of alkalines like Energizer's Advanced Formula and Duracell's Ultra cells perform a bit better, but not a lot. Lithium AA cells don't provide value for their price, which is about three times higher, and rechargable alkaline cells are even worse. Don't even *think* about using cheap dry cells.

Rechargable cells have capacities much lower than those for alkaline non-rechargable ('primary') cells. About 1Ah is a common rating for good nickel-cadmium (NiCad) and nickel metal hydride (NiMH) rechargables. These cells also have a lower per-cell voltage — only 1.2V compared to 1.5V from alkalines. But they handle high output currents much better than the primary cells. Under a 1A load, a 1.2V NiCad will deliver its full rated capacity without breaking a sweat. On the downside, ordinary NiCad chargers take at least a few hours to pump these cells back up again, while trickle chargers take about 14 hours.

You can get a better charger from a hobby shop that handles radio control gear. Many chargers intended for model car battery packs cost about $100 and have as their minimum setting the 500mA or so suitable for charging small cells — all you need to do is buy a 4xAA cell holder for less than $2 and put a connector on it that the charger can plug into or clip onto.



Clockwise from top right: A simple AA cell holder; a four D cell holder; battery pack lead with barrell plug; four 950mAh NiCd cells, and one 7000mAh F cell; a 6V battery pack built out of 7000mAh F cells, with Anderson connectors for charging.

(As shown in the top right-hand corner of the above picture). A better charger can also be handy if you adopt my preferred solution to the camera battery problem: the big fat outboard battery pack.

Bigger, better batteries

The simplest such pack is a D cell holder with alkaline cells in it (as shown in the bottom right-hand corner of the above picture). D-size alkalines have a capacity of about 15Ah. They only face about twice their C/20 load from the average digital camera, and thus deliver more of their rated capacity than do AAs. But you still won't get the duration you might expect from the 15Ah rating.

You can get a four D cell holder from any electronics shop for a few dollars. To connect it to the camera, you'll need a lead that can plug into your digital camera's AC adapter (plugpack) connector.

The easiest way to get a suitable lead is to cut one off a plugpack, but if that doesn't appeal, most electronics shops stock the simple two-terminal 'barrel' plugs most cameras use (as shown in the bottom left-hand corner of the picture at left). Make sure you get a plug with the right inside *and* outside dimensions.

Putting it all together is a simple soldering job. If you don't know how to do this and don't want to learn, your local electronics technician will be able to do it for you in a few minutes if asked (or paid) nicely. Make sure you get the polarity of the connector right. Most barrel plugs are wired 'tip positive' and the sleeve of the plug is the negative terminal. If you're uncertain, use a cheap multimeter (less than $20 from electronics stores) to check the output from the plugpack.

The pack I use is made from enormous 7Ah Sanyo F-size rechargables (as shown in picture at left). In Australia, you can expect to pay around $30 each for F cells. The much more common 4.4Ah D cells sell for about $15 each, and are a more sensible proposition.

Eagle-eyed readers will note that my pack contains not four but five cells. This gives the camera 6V, which means its motorised zoom works noticeably faster than it would with the 4.8V four NiCads. A NiCad pack that delivers less than the rated voltage of a camera's mains adapter should cause no problems, but don't cut it too fine — freshly charged NiCads can deliver more than 1.2V for a little while.

ADM DISTRIBUTION

INTERACTIVE MUSIC

From the leaders in award-winning PC sound technology

Turtle Beach™

High Performance Audio Hardware

▸ Music, Games, MIDI and Multimedia

Montego A3DxStream



$189.95 SRP Inc tax

- High resolution 18-bit converters for crystal clear recording and playback at up to to 48 KHz sample rate
- High-quality music and audio performance with better than 92dB signal-to-noise ratio
- Hardware accelerated Direct Sound™ with multistreaming bus-mastered PCI audio
- 64-voice PCI wavetable synthesis with 4 MB instrument sample set, chorus and reverb
- Aureal A3D positional audio

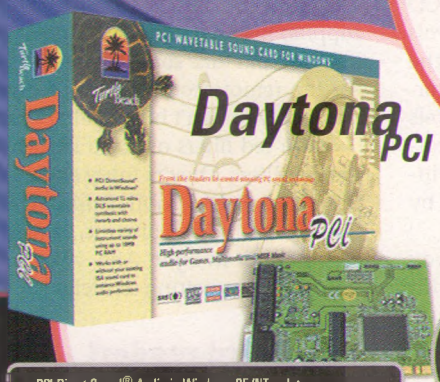
Malibu Surround 64



$159.95 SRP Inc tax

- 100% compatible with DOS and Windows® games
- 64 voices of wave table synthesis in Windows 95®
- Legendary Kurzweil® hardware wavetable synthesis with 4 MB of instrument samples
- S/PDIF for pure digital audio output
- Includes Voyetra® software suite for audio production

Daytona PCI



$119.95 SRP Inc tax

- PCI Direct Sound® Audio in Windows 95/NT or later
- Advaced 32-voice DLS wavetable synthesis with reverb and chorus
- Limitless variety of instrument sounds using up to 10MB PC RAM
- Works with or without your existing ISA sound card to enhance windows performance
- Includes Voyetra® software suite for audio production

PC GAMER EDITORS CHOICE AWARDS

COMBATSIM TOP PICK

GAMEWOW cnet www.gamecenter.com

HAPPYPUPPY.COM IT'S ALL GAMES

Dare to Compare...

We're the best value...

	Malibu Surround Sound 64	SoundBlaster AWE64
100% DOS & Windows Games Compatible	Yes	Yes
S/PDIF Pure Digital Audio Output	Yes	No
Hardware Full Duplex	Yes	No
Total Wavetable Voices for Win95	64	64
Wavetable ROM	2MB*	1MB
Hardware MP-401 UART Interface	Yes	No
Voyetra Synth Layering (VSL)	Yes	No

*4 MB of Wavetable samples in 2MB ROM

ADM Distribution Pty Ltd. 2 Mary St, Blackburn VIC 3130. Ph 1800 060 825

Available from: Harvey Norman Computer Superstores (National) - Dick Smith Power House (NSW & Vic) And the following selected retail outlets:
VIC: Myer Electric, Clive Peeters, CyberSpace, Computer Wiz. **QLD:** Software Today, Myer MegaMart, Atomic Technologies.
NSW: Electronics Boutique. **WA:** Abacus. **SA:** Berlin Wall

To build a custom battery pack, you'll need to solder the cells together with wire. Soldering to cells can be tricky — you need a soldering iron with a fairly large tip, and you need to roughen up the ends of the cell a little with sandpaper or a file to encourage the solder to stick. It's much easier to use 'tagged' cells, which have an easy-to-solder tag on each end.

Higher capacity NiCads are not available in tagged versions. To practice soldering to them, use a few old non-rechargable cells first. Tin the wire you intend to use — coat it with solder. Now roughen the ends of the cells, tin them too, and then press the wire you intend to use onto the tinned cell end with the iron. It should all be over in a few seconds. If you find yourself heating the end of the cell for ages, you're doing it wrong.

Once you have the tagged cells, or have learned to solder to untagged ones, arrange your cells the way you want them, and stick them together. Hot melt glue is good for a battery pack assembly. The cells should be aligned so it's easy to wire each cell's positive end to the negative of the next, with the power cable attached to the terminals on the ends of the line. It's a good idea to splice a connector compatible with your charger into the power cable; otherwise you'll need to make a barrel socket adapter for your charger.

Once you've built the pack and verified that it works, mummify it. I wrap large packs with several layers of cloth-backed gaffer tape. It's hard to beat for durability and price.

Long exposures

A few digital cameras, like my DC120, can do long exposure images. This is a very interesting feature, but to get the best results, you really need to know a trick or two.

First, get a tripod. If you hold your camera by hand for long exposures, it will produce artistically fuzzy results. Every digital camera worth its salt can screw onto the holding plate of any cheap lightweight tripod. This also works with video and film cameras. Even when you have got a stable camera mount, though, your pictures will still tend to look a bit funny.

The problem with long-exposure digital photography is that cheap digital camera charge coupled devices (CCDs, the image sensor inside the camera) don't do long exposures very well. At ordinary temperatures, they don't produce a perfectly even signal strength — some pixels on the CCD are 'hotter' or more active than others, and the CCD produces generally higher signal levels than it should the closer you get to the warm amplifier connection in one corner. In a long exposure, the hot pixels show up as bright dots and the warm corner has a diffuse bluish-white glow. Editing these artefacts out of the image by hand is extremely tedious.



A typical 16-second long exposure shot. The magnified section shows the bright dots of 'hot pixels'; note also the diffuse glow in the top left-hand corner from the 'warm corner' of the CCD next to its amplifier.

Fortunately, there's a fairly easy way around the problem. Cover the lens with something light-proof and take a picture with the same exposure time as the one you want to clean up. This will give you *only* the speckles and glow. Now, in your favourite paint package, subtract this 'dark field' image from the picture you want to clean. In Photoshop, you can do this by loading both images, selecting the dark field image, pressing Ctrl-A (select all) and Ctrl-C (copy), selecting the photo image, pressing Ctrl-V to paste the dark field as a new layer, and then setting that layer's blend mode in the layer palette to Difference.

If your camera's 'warm corner' corresponds to a dark part of the image, this operation by itself should clean up the picture wonderfully. If there's some image detail in the warm corner, though, you'll see an odd negative effect there. You can correct this by making the dark field layer more transparent until the corner looks OK — the speckles will start to come back, but should still be greatly reduced. You can also make an alternative dark field image with the warm corner faded a bit.

Bear in mind that using high compression settings for long-exposure images will smear the artefacts around, and make cancelling them in this way practically impossible.

Lens protection

It's a pretty cheap and nasty film camera that doesn't come with a lens cap. But a remarkable number of digital cameras don't. Fortunately, many of them *do* have a standard 37mm thread in front of the lens, so it can take filters intended for camcorders.

A plain piece of glass in a filter holder will serve, but you can do better. Camera CCDs are sensitive to infra-red, and many cameras don't have an infra-red-blocking filter built in. To tell if your camera does, try zapping it with a remote control in a dimly lit room and take some pictures. If you can see the remote control's LED emitter as a blue dot, you don't have a filter built in.

Infra-red filters are also known as 'hot mirror' filters. They're fairly expensive, but they can considerably improve outdoor shots in unfiltered cameras, removing the blue haze of IR light. And, of course, they stop your lens getting scratched.

Get a card reader!

If you're sick of waiting ages for images from your camera to be pumped down a serial cable to your computer, and your camera uses CompactFlash, PCMCIA or SmartMedia cards for storage, consider investing in a suitable card reader. These use parallel, SCSI or USB interfaces, and move your data more than 100 times faster than a serial cable.

Daniel Rutter welcomes feedback and suggestions at dan@dansdata.com.

Workshop

Online updates for Windows 98 and its applications.

By Kieran McNamee

Windows 98

As is usual for a Microsoft operating system, Windows 98 is far from perfect. It is also fairly incomplete, and the only way to fix it up is to download and install a number of bug fixes.

If you have already installed Windows 98, there are a couple of fundamental things that need to be taken care of before you even think about applying additional bug fixes. Converting your hard drive to FAT32 will free up quite a bit of space, and the process also runs ScanDisk and defragments your hard drive. To convert your drive to FAT32 all you have to do is click on Start, Programs, Accessories, System Tools, Drive Converter.

Keeping your hard drive efficient and free from errors by regularly running ScanDisk and Disk Defragmenter is an important procedure to keep your system, and ultimately Windows 98, working smoothly. When running Disk Defragmenter, ensure that you enable the setting to rearrange program files so that your programs start faster.

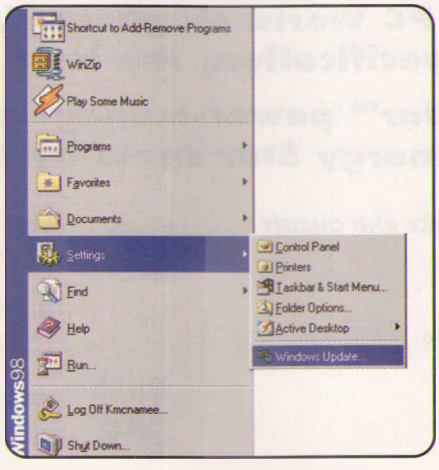
Instead of manually loading ScanDisk and Disk Defragmenter every few weeks or so, you can automate the entire process with the Windows 98 Maintenance Wizard located in the System Tools folder. The Maintenance Wizard incorporates Scheduled Tasks which automatically runs ScanDisk and Disk Defragmenter, and periodically deletes unwanted files that are just wasting space.

Scheduled Tasks not only performs maintenance tasks (such as those previously mentioned), it also lets you configure any other program to run whenever you want it. Tasks can be scheduled to run daily, weekly, monthly, or at certain times, such as when the computer starts or when it is idle.

If you still have Scheduled Tasks in your System Tray, then open it and see if Program Tuning is listed. (If you are like me it may have mysteriously vanished; or more likely, it may have been foolishly deleted.) This utility supposedly rearranges programs so that they start faster. I don't know how effective this is, but there is no harm in scheduling it to run once a week or so. For those of you who can't find this utility in the Task Scheduler you can add it from the following location, \windows\system\walign.exe.

Windows Update

Let's move on to the all-important Windows Update feature of Windows 98. First access Windows Update in the Settings folder from the Start button.



When you select the Windows Update icon you will be taken to the Windows Update Web site (being connected to the Internet at this point in time is a good idea, of course). Before you can select any patches to install, you will be prompted to either register with Microsoft or to log on, using your email address and Microsoft password.

The Windows Update Web site is well designed and fairly easy to use. The ability to see what updates you have already installed on your system is helpful — it prevents you from downloading unneeded files. You will have to allow Windows Update to scan your system to see what items have been installed; however, none of this information is sent over the Internet.

Currently, Windows Update consists of two areas: the Product Updates catalog and the Support Information area. We will be looking at the Product Updates catalog.



The Critical Updates list is displayed at the top of the page and there are about seven updates to install the first time you access Windows Update. There are other less-crucial updates down the page, including picks of the month, recommended updates, additional Windows features, fun and games, and preview versions. Every update is clearly labelled and specifies whether it is new or updated, and the recommended user level.

You can check which updates you want to install and then download them all at once. The download process is not perfect; when I was downloading and installing more than 10M of updates, a number of them were unsuccessful. This meant I had to repeat the process for those items that did not install successfully the first time.

Deciding which updates to download and install is entirely up to you. Installing most, if not all, of the critical updates is

Displays of excellence...



"... Best Buy..." - PC World Magazine"... dollar for dollar, specification for specification, the best value for money..."

CTX SuperStar™ power-management savings!
Exceeds EPA Energy Star specs by more than 80%

Silver Award in performance and quality
PC Home (UK), July 1998

Best Performance
Computer Life (USA), July 1998

Best Pick
PC Today

Best Buy
PC Guide

Best Budget Buy
PC Computing (USA), May 1998

First in Quality
PC @uthority, Australia, May 1998

Model	VL500	VL700	VL710	PR710(Trinitron®)	VL950	EX1200
CRT Size/Viewable	15"/13.8"	17"/15.7"	17"/15.7"	17"/16"	19"/18"	21"/20"
Dot Pitch (mm)	0.28	0.28	0.26	0.25	0.26	0.26
Horiz. Scan(KHz)	30-70	30-70	30-95	30-95	30-95	30-95
Max Resolution	1280x1024/60Hz	1280x1024/60Hz	1600x1200/75Hz	1600x1200/75Hz	1600x1200/75Hz	1600x1200/75Hz

Trinitron® is a registered trademark of SONY Corporation

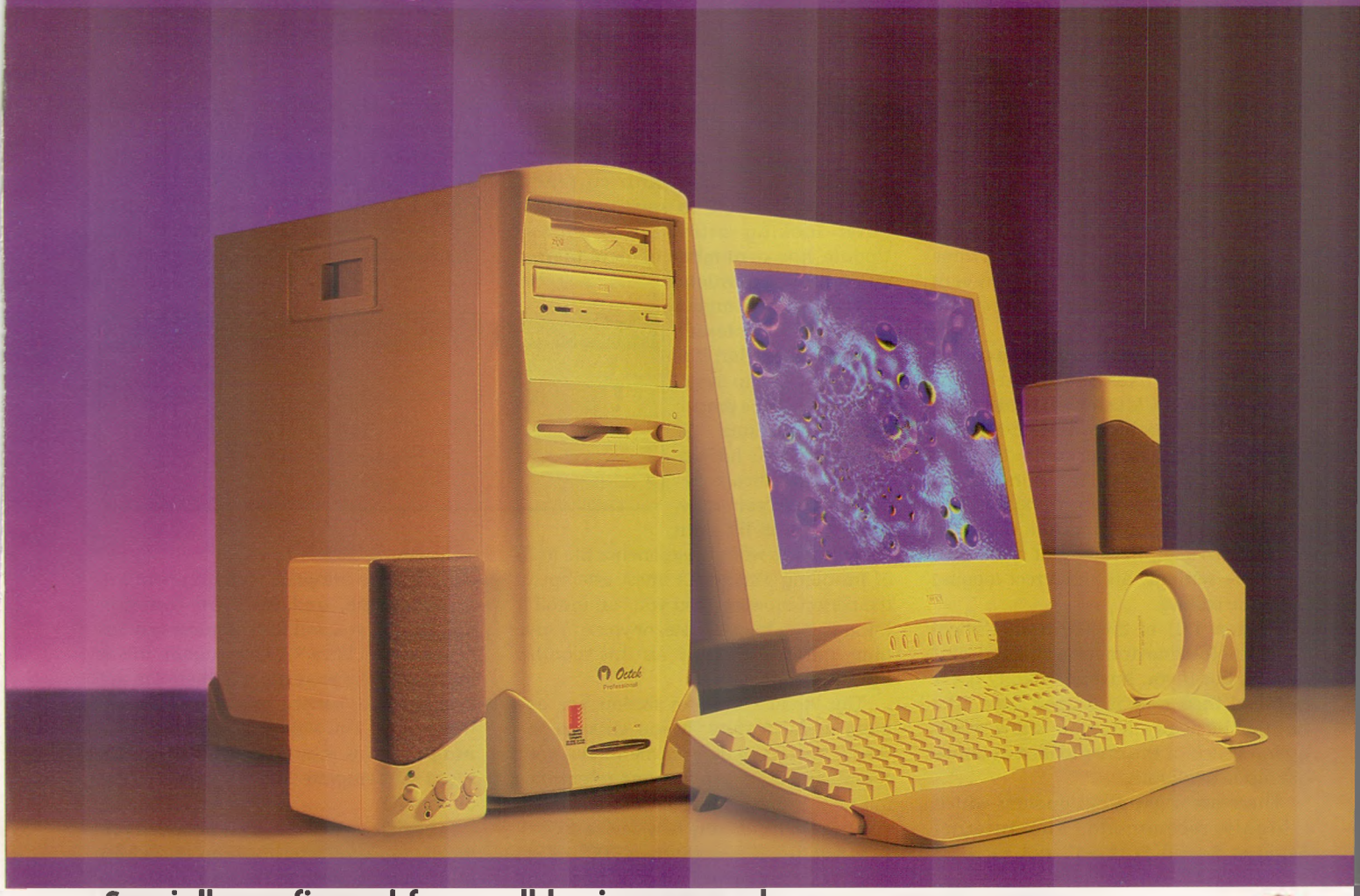
CTX
Committed to Excellence

www.ocean.aust.com

Exclusive distributor
Ocean Office Automation Pty. Ltd.

Limited Nationwide Onsite Warranty 3 years
underwritten by
American Home Assurance

Octek Professional...



Specially configured for small businesses and power games users.

Free! **Comprehensive 3 Years On-Site Nationwide Warranty valued at $400.**
– Local support. Service done by local service agents. – Underwritten by American Home Insurance

underwritten by American Home Insurance

Free! **Microsoft Works Suite 99 Pack valued at $200.**
(Word, Works, Works Calendar, Money, I.E., Studio Greetings, Encarta World Atlas, Word Value Pack, Word Clip Art)

Small Office Server
Intel® Pentium® III Processor 500MHz

- 128MB SDRAM
- Intel® L440GX + Server Board
- Dual Processors Supported
- Integrated 2MB Graphics
- Integrated Intel® PRO/100+ NIC
- System Management Instrumentation
- Quantum 9.1GB SCSI-2/LVD HDD
- Sony 24x SCSI CD-ROM
- Full Tower ATX Chassis
- Microsoft Intellimouse
- 15" Monitor (1280 x 1024)

$5,690* or $52 per week**

Office Executive System
Intel® Celeron™ Processor 400MHz

- 64MB SDRAM
- Quantum 6.4GB Ultra ATA HDD
- i740 8MB AGP Graphics
- Intel® PRO/100+ NIC
- Sony 32x CD-ROM
- Mini Tower Chassis
- Microsoft Intellimouse
- Windows 98 with PLUS 98
- 15" Monitor (1280 x 1024)

$2,250* or $21 per week**

Office Terminal
Intel® Celeron™ Processor 333MHz

- 64MB SDRAM
- Quantum 3.2GB Ultra ATA HDD
- S3 4MB AGP Graphics
- Intel® Pro/100+ NIC
- Sony 32x CD-ROM
- Mini Tower Chassis
- Microsoft Intellimouse
- Windows 98 with PLUS 98
- 15" Monitor (1280 x 1024)

$1,950* or $18 per week**

Power Games System
Intel® Pentium® III Processor 450MHz

- 64MB SDRAM
- Quantum 6.4MB Ultra ATA HDD
- nVidia TNT 16MB AGP Graphics
- Internal 56K Data/Fax Modem
- Sony 32x CD-ROM
- Aureal Vortex2 SuperQuad Digital PCI Sound card with A3D®
- Sub-Woofer Speakers
- Medium Tower Chassis
- 17" Monitor
- Microsoft Intellimouse
- Windows 98 with PLUS 98

$3,790* or $35 per week**

*Prices and specifications are subjected to changes without notice. The picture shown may not represent all the different models. **Prices are based on 36 months rental and operating lease. Rental and operating leases are only available to business customers. Fast approval for up to $20,000. Conditions apply. The Intel Inside Logo and Pentium are registered trademarks of Intel Corporation and MMX and Celeron are trademarks of Intel Corporation.

We Deliver Better Tech
Octek™

Manufactured by
Ocean Office Automation Pty. Ltd.

For more information and custom-configuration, please call or visit our new web site.

www.octek.com.au

For the nearest dealer please call

132286

Quality Endorsed Company
ISO 9002 Lic 6184
Standards Australia

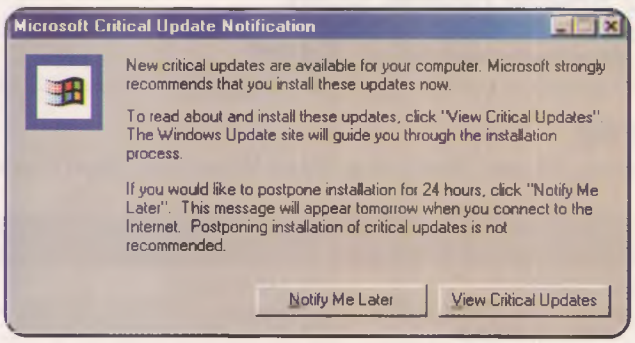
intel inside
pentium® III

advised. The most important of these are related to the security of Internet Explorer. There is the Outlook Express 'File Attachment' Security Update, the Internet Explorer Window.External.Jscript Security Update, the 'Dotless IP Address' Security Update, and the Internet Explorer 'Frame Spoof' Security Fix, which all prevent unauthorised Internet users accessing your computer.

It may be reassuring to install a couple of year 2000 bug fixes. The update for the Microsoft Virtual Machine basically corrects a minor problem associated with generating dates on your computer on or after January 1, 2000. The Windows 98 Year 2000 Update corrects things such as the entering of expiration dates in Microsoft Wallet, handling of some date and time settings, and incorrect logging of online calling.

Version 1.01 of the Microsoft Critical Update Notification is not a crucial update, but if you haven't already got it installed then now is a good time. The notifier basically lets you know when updates such as the ones looked at above are made available.

There are a few other updates which I highly recommend. The Internet Explorer Sound Pack will not increase the speed of your Internet connection, but it will provide a more pleasurable surfing experience by playing confirmation sounds every time you click on a link. If you play games and have yet to install DirectX 6 then add it to your download list. Windows Media Player is perfect for playing all types of media files. Version 6.0, which you can download through Windows Update, upgrades the previous versions of Media Player, NetShow and ActiveMovie and plays most multimedia content formats including Windows Media, RealAudio/RealVideo 4.0, QuickTime, AVI, WAV, MP3 and more. The Additional Web Fonts package is also worth downloading, as it installs the fonts that many Web designers use in their pages. This updated version also includes the symbols for the new euro currency. Finally, if you like to keep your computer looking attractive, Windows Update has a number of new themes available for download.

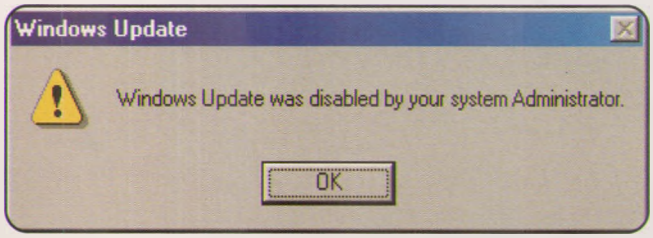


You may be tempted to install the Internet Explorer 5 beta, but it is probably better to avoid doing so until the proper finished version is released. If you have a second non-critical computer, then you may want to install IE5 on it. For those who want to experience the thrill of installing Microsoft's latest attempt at the perfect browser, then you can install it through Windows Update, or you can save time and use the copy on this month's **apcmag.cd**.

The Product Updates section has one more useful feature. If you click on the Device Drivers option on the menu, your computer will be scanned and after a few minutes, Windows Update will tell you if you need to install any new device drivers. I am not sure if this feature is 100% effective, but if it finds any new device drivers then you may as well install them.

We won't look at the support section of Windows Update in too much detail, but it is worth a mention. If you ever have a problem or query regarding Windows 98 you can gain access to numerous support options from this section of the site. There are answers to frequently asked questions (FAQs), a listing of 'known issues' as well as links to online technical support.

For all you IT managers out there dreading the thought of having inexperienced employees clicking on the Windows Update button and messing with things they shouldn't, you can now breathe easy. You can remove the Windows Update option from the Start menu with a new entry to the Registry. Type REGEDIT in the Run dialog box, then create the following key: HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\CurrentVersion\Policies\Explorer (when you find the Policies key simply right-click and create the Explorer key). Within the Explorer key you must create a DWORD value, titled *NoWindowsUpdate*, then right-click and give it a value of '1'. The Windows Update will not appear on the Start menu and Windows Update will not be accessible at all until the value of that DWORD is set to '0'.



Other updates

No system is complete with an operating system alone, and the most common application you will find on most systems is Microsoft Office 97. Once again, this is an incomplete program and there are not one but two 'service releases' to fix up those bugs. You will find them on **apcmag.cd**. You may also want to install Word 97 Template Security patch found on the CD.

The first service release is designed primarily for large organisations to address migration issues, making it easier to manage potential problems encountered when sharing files between different program versions. The second service release has many bug fixes that may or may not be useful to you. One supposed 'fix' is the overwriting function enabled by the Insert key. I preferred it when you could accidentally hit the Insert key without fearing that everything you type would overwrite the existing text. You need to install the first service release before you can install the second one.

The Word 97 Template Security Patch addresses a vulnerability that would allow malicious code to be run in a Word 97 document without warning the user. Word 97 does warn users if a document contains a macro, but if a document contains a link to a template with macros, Word does not give a warning unless this patch is installed.

Many of you will probably remember Microsoft's TweakUI utility for Windows 95. If you haven't already installed TweakUI from your Windows 98 CD-ROM then you can do it now (you'll find it in the tools\reskit\powertoy folder). The customisation features provided by this utility are the icing on the cake for a complete and up-to-date Windows 98 installation.■

What do MMPM/2 and the bundled multimedia applications have to offer?

By Christopher Relf

OS/2 Warp

As discussed in last month's column, OS/2 shines brilliantly when it comes to multimedia — with its protected multithreading, pre-emptive multitasking, and high-performance file system, OS/2 is the perfect choice. So let's look at how we can use this powerful multimedia system to our advantage.

The Multimedia Presentation Manager (MMPM) is a very useful combination that was first released with OS/2 Version 2.1. It is generally supposed to work on three levels: device drivers, multimedia subsystems and MMPM/2 applications. Let's have a look at each of these in turn.

Device drivers These are the actual code that talks to your hardware: soundcards, video cards, and so forth. These drivers are not only available for multimedia hardware, but are also required for programs to access other devices, including printers, and tape and CD-ROM drives. For more information on obtaining device drivers and how to use them, refer to last month's OS/2 column (*APC* March, page 140) where we covered a very useful Web-based resource called DDPak Online.

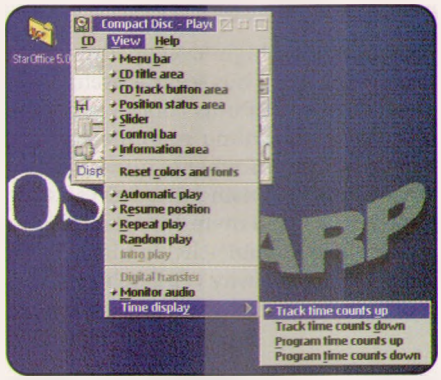
Multimedia subsystems There are three main subsystems pertaining to multimedia: the MMIO (multimedia I/O interface) allows the MMPM/2 applications to manage multimedia files without really having to understand their formats completely; the MCI (media control interface) makes it possible for you to access multimedia hardware using your own programs written in languages like C++, LabVIEW, and REXX; and the SSM (the sync-stream manager) which, as its name implies, controls the synchronisation of all types of multimedia, such as audio, video and captioning, and ensures that all of these play at the right speed relative to each other. Confused yet? Don't give up, it gets much simpler from here.

MMPM/2 applications These are the programs that you see (or hear) actually doing something. The video player bundled with OS/2 is a great example — you interact with it, it talks to the OS, other software and the hardware. You don't notice all of this happening, you just play with the MMPM/2 application. You will probably spend most of your time with MMPM/2 applications, so let's have a look at the ones provided free of charge when you install OS/2 Version 4.

Free MMPM/2 applications

The Volume Control This is the simplest application. It provides you with ultimate control over the output of the OS/2 sound mixer. It's just like the volume control on a sound system's amplifier and it looks the same too, just a circular control knob.

The CDP (Compact Disc Player) This is one of the easiest MMPM/2 applications to use, and it's also useful to make sure your CD-ROM drive is correctly connected and in working order. It looks quite similar to the control panel of a standard music CD player: the normal controls (play, stop, skip, shuttle and eject) are there, and you can also select a track instantaneously, adjust the CD player volume control locally, and view track and time information.



The DAP (Digital Audio Player) While on the subject of sound, let's take a quick look at the Digital Audio Player. In conjunction with your soundcard, it lets you record, play back and even edit digital sound files (called wave files, as they represent the waveforms of the sound). Much like the Compact Disc Player, the controls on the Digital Audio Player are what you would expect them to be: play, stop, record, and so on (although there are several more options available).

Although there isn't much to see on first inspection of the Digital Audio Player, there is a very powerful audio editing application tied to it. If you choose View, Editor, the waveform-editing window appears, including a comprehensive amplitude-against-time plot. You can play with the Zoom slider to compress and stretch the waveform graph within this window, and even more editing and selection information is displayed. The main controls are also mirrored here for easy use. Some of the things that you can do using the Digital Audio Player in Edit mode are:

Increase volume by 25% *
Decrease volume by 25% *
Maximise volume
Double Speed *
Half Speed *
Fade In
Fade Out
Add Reverb *
Reverse
Add Echo *
Mix from File
Mix from the Clipboard

The commands marked with an asterisk (*) are recursive — you can apply them to a sample more than once. For example, if you wanted to speed the file up fourfold, you just select Double Speed twice. Similarly, if you wanted to add an immense amount of echo to your wave file (for that *really* spooky effect), then just keep on adding echo until you get your desired result (or the sound becomes totally unintelligible, whichever comes first!).



The DVP (Digital Video Player) Using Software Motion Video is as simple as its audio counterpart — the controls are set logically and intuitively. IBM's Software Motion Video means that you don't really need to apply any image or audio compression to play smaller windowed video on higher-end processors.

You can play AVI (Audio-Visual Interleaving) files using the DVP, and although AVI files are not as popular as QT (QuickTime) files, there are still a few out there. 'The Hunt for Red October' and 'Blazing Saddles' haven't been released in this format yet, but it is still quite useful. As you might expect, there aren't any editing features available with DVP, so you'll need a third-party application to do that (see the AVI File utility below).

The MVDP (MIDI and Video Disc Player) Much like its counterpart in Windows 95/98 Media Player, the MVDP can play MIDI (Musical Instrument Digital Interface) files and Video Discs. MIDI files contain only data about what to play, and when (and possibly, depending on the MIDI version, how to play it, with parameters such as tempo, dynamics, breath control, after touch and portamento) rather than the ever-popular MOD format, which also contains the instruments. This makes MIDI files sound different depending on your soundcard, but MOD files are much bigger. A great third-party MOD player is UltiMOD, available from most OS/2 download sites.

The Multimedia Data Converter (MDC) This is an almost-useful utility included with OS/2 Warp. The idea behind it is great, but the execution lacks enough substance and support to be useful. You can convert your audio and image files to a limited number of other formats. For example, you can convert OS/2 bitmap files to a format viewable on an IBM M-Motion adapter (not that many people have one these days!).

The MDC uses RIFF (Resource Interchange File Format). This is the bit that's a good idea — it's a standard format used by many different types of multimedia files. The advantage of using RIFF is that, when converting a RIFF-compliant file into another file format, the RIFF interpreter can convert the parts (called chunks) of the file that it understands, and ignore the bits it doesn't. A close parallel is HTML (Hypertext Markup Language), where, if the Web browser (for example IBM Web Explorer) understands a tag (like the RIFF chunk) it is displayed in the Web pages, but tags that are foreign are ignored. Also



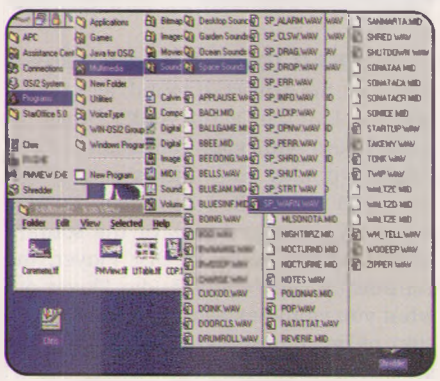
similar to HTML, RIFF can be updated when new chunk definitions are introduced.

The AVI File Utility If you included the Video In component when you first installed OS/2 (admit it, you probably didn't because you thought it meant you needed a video capture card), then you have a neat little tool called the AVI File Utility somewhere on your hard drive. If you're at all serious about video and OS/2, you'll find that it can do some great things. For example, you can divide the video and audio tracks in an AVI file, view the RIFF chunks and their structure, add and delete RIFF chunks and even (this is my favourite bit) create an AVI from still frames (bitmaps or still video images).

I won't go into more detail on the AVI File Utility here, but there is a lot of information to be found in its online help.

Embedded multimedia enhancements

Like most other high-level operating systems, OS/2 Warp has several useful lines of code written into its core to assist the user in manipulating multimedia files. One such enhancement, although not particularly surprising these days, is the ability to immediately launch a multimedia file by double-clicking its icon on the desktop. The way OS/2 achieves this is different to other operating systems in



that for all of the file formats that are supported by OS/2's core, the file is immediately played by the core itself. No multimedia applications are launched, thus extra processing power is not required (sounds typical of the OS/2 developers!).

Another enhancement is called the Light Table. It looks much like a normal file browser window, except that visual image multimedia is represented using a large icon that looks strangely like a slide, and that's exactly the idea. Images (such as bitmaps and JPEGs) are shown in 'thumbnail' format in these cute little slide borders, so you can see each image in a smaller format before loading them all into your image editor. This makes organising your images a breeze, as you don't have to rely on the names that you've given your pictures. You'll definitely enjoy Light Table if you've got a digital camera that generates imaginative names such as IMG00001.BMP, IMG00002.BMP and so on for the photos you take. One problem



with Light Table is that viewing a file list can often take a much longer than a simple list of filenames.

Third-party multimedia applications

This month, you'll find some of the best third-party multimedia applications in the OS/2 Shareware section of **apcmag.cd**, because you can't possibly do everything that you want using the applications bundled with OS/2 Warp. I have collected what I consider to be the best multimedia programs in several categories for your multimediatic pleasure — enjoy!

Comments on what you see in OS/2 Workshop — or what you would like to — can be emailed to Christopher.Relf@tip.csiro.au.

Scripting with Mac OS 8.5 — a look at AppleScript's most interesting new features. **By Stephen Withers**

Mac OS

One of the big changes in Mac OS 8.5 was the improvements made to AppleScript. Apart from the speed increases that come from native PowerPC code, Apple has made more system components scriptable, added new commands, and tidied up some of the existing dictionaries.

The user documentation has improved too: select AppleScript Help from the Help menu when you're in the Script Editor, and you'll see what I mean. Note that updated versions of these help files are available from http://www.apple.com/applescript/updates/updates.html — appropriately, the package's installer is itself an AppleScript. (This Web page also contains a link to the Mac OS 8.5.1 updater that, among other things, corrects an AppleScript memory leak.)

Apple is also renovating its online scripting overview at http://www.apple.com/applescript/overview/, but at the time of writing, the coverage was very patchy. It looks like it'll be worth returning to over time.

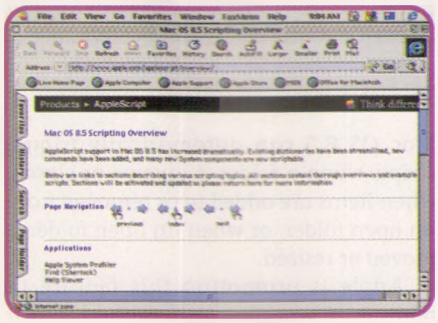
For now here's a guide to what I think are AppleScript's most interesting and useful new features.

Sherlock's summarizer

Although Sherlock has received plenty of attention for its ability to access multiple Internet search engines in search of relevant material, another feature has gone largely ignored.

Using a technology first demonstrated by Apple several years ago, Sherlock is capable of summarising a passage of text into a specified number of sentences. If you've installed Microsoft Internet Explorer 4.5, you may have tried this feature, as it is one of the choices on the Sherlock pop-up menu (on the Address toolbar).

The results of the summarizer are sometimes surprising. It's supposed to work well on texts that resemble newspaper stories, but I found this isn't always true. On the other hand, I asked for a summary of the lyrics of the Smokey Robinson and the Miracles' 'Shop Around', and the result was a passage that represented the message of the song very well.



Anyway, one of the easiest ways to use the summarizer with programs that don't support it directly is to create an AppleScript that summarises the contents of the clipboard, and then place the result back onto the clipboard. The OSA Menu extension can then be used to make the script accessible from any application, or you could add it to the Script menu of programs (such as Emailer) which make such a provision.

The command for summarising can be found in Standard Additions in the Scripting Additions folder. Its syntax is:

```
summarize anything [in integer]
```

where 'anything' is a string, an alias, or file specification of a text file, and 'integer' is the length of the summary in sentences. The result of the operation is a string.

Fortunately, the version of AppleScript in Mac OS 8.5 also provides ways of getting and setting the contents of the clipboard, so third-party additions are no longer needed for this purpose.

The script is therefore:

```
set text_to_sum to the clipboard
set the clipboard to (summarize text_to_sum in 1)
```

Another way of using the summarizer is to create a droplet that summarises the contents of a text file that's dropped onto it.

First, we need some code to handle the drag-and-drop operation, filtering out the wrong file type. Once the summary has been created, we'll leave it on the clipboard, though you might want to write it to a new file with a name based on that of the source, or append it to the original file. Either of the latter approaches would allow the script's extension so that it could process multiple files dropped onto it.

I doubt that the following script (named Summarize in the Workshop section of **apcmag.cd**) is bulletproof, but it is a starting point if you want to experiment further:

```
on open file_list
        set the_file to item 1 of file_list
        set file_info to info for the_file
        if file_info's file type = "TEXT" then
        set the clipboard to (summarize
        the_file in 1)
        else
        display dialog "Not a text file"
        end if
end open
```

Another useful variation would be to allow the user to specify the length of the summary. AppleScript now has a choose from list command, as in:

```
set how_many to (choose from list {"1", "2",
"3"} with prompt "How many sentences?"
without multiple selections allowed) as integer
```

Adding that statement after the line that tests for a text file and replacing the constant "1" in the summarize statement to how_many should do the trick.

One final point on Sherlock is that Internet searches can be scripted, including the selection of plug-ins to be used. The basic syntax is:

```
search Internet [string1] for string2
```

where string1 is an optional list of sites to be searched and string2 is the text which Sherlock should look for. The 'for' clause can be replaced with a 'using' clause that specifies a saved Find file containing the required query. The result of search Internet is a list of matching URLs. Items from this list can then be passed one at a time to a Web browser for retrieval. Although Standard Additions provides the open location command for this purpose (directing the request to the appropriate application as specified in the Internet control panel), this is likely to cause the

pages to be sequentially retrieved into the same window, so you only get to see the last on the list. Depending on the browser you are using, it may be possible to open a new window for each URL. This is how to do it with Microsoft Internet Explorer 4.5:

```
tell application "Sherlock"
        set url_list to search Internet "apc
        mag.com" for "Sherlock"
        quit
end tell
tell application "Internet Explorer 4.5"
        Activate
        repeat with i from 1 to count of url_list
        OpenURL (item i of url_list) as
        string toWindow 0
        end repeat
end tell
```

(See Sherlock Retrieval on **apcmag.cd**.)

Doubling up

Although the Appearance control panel lets you move the scroll arrows to the lower or right-hand ends of the scroll bars, Mac OS 8.5 also allows both arrows to appear at each end. While this feature can be activated in the Prestissimo control panel (http://www.polymorph.net/), it can also be controlled from an AppleScript.

If you rely on Appearance's dictionary, you'll think the options are either:

```
set scroll bar arrow style to single
```

or

```
set scroll bar arrow style to both at one end
```

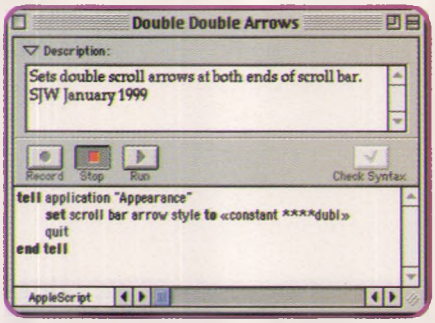
However, if you use Prestissimo to set the arrows to "both at both ends", and then use AppleScript to read the value of scrollbar arrow style, you'll find that it is «constant ****dubl».

So the script:

```
tell application "Appearance"
        set scroll bar arrow style to «con-
        stant ****dubl»
        quit
end tell
```

gives you double-ended double arrows (see Double Double Arrows on **apcmag.cd**).

Many other items controlled by Appearance can be changed with a script, so there's plenty of scope for fun and games, such as selecting a theme or desktop picture according to the day of the week or even the time of day.



Folder automation

Mac OS 8.5 can automatically trigger scripts when a folder is opened or closed, when items are added to or removed from an open folder, or when an open folder is moved or resized.

Apple is promoting this feature in relation to workflow automation, but it can be used just to help keep things tidy. Maybe when you close a particular folder, you always want to close the folders it contains as well. The following script (Close Test 1 on **apcmag.cd**, but it's basically the same as the standard script called "close - close sub-folders" in the Folder Action Scripts folder in a normal Mac OS 8.5 installation) does the trick:

```
on closing folder window for this_folder
        tell application "Finder"
        activate
        close every folder of folder
        this_folder
        end tell
end closing folder window for
```

However, it's not recursive — every folder only refers to those folders immediately within the current one. While the entire contents digs through the hierarchy, it leaves you with the task of filtering out the subfolders from the documents and other files. The simplest way I found to do this is to look at the last character of each item in the list; if it ends with a colon, it's a folder. This version is called Close Test 2 on **apcmag.cd**.

```
on closing folder window for this_folder
        tell application "Finder"
        activate
        set folder_list to the entire contents
        of folder this_folder
        repeat with i from 1 to count of
        folder_list
        set this_thing to (item i of f
        older_list) as string
        if last character of this_thing = ":"
        then
        close folder this_thing
        end if
        end repeat
        end tell
end closing folder window for
```

You might like to modify this script so that all the subsidiary folders open automatically when the folder associated with the script is opened.

To ensure a folder's window always opens at the top left-hand corner of the desktop, you could use a script like this:

```
on opening folder this_folder
        tell application "Finder"
        copy the bounds of the container
        window of folder this_folder to {l, t,
        r, b}
        set r to r - l + 6
        set b to b - t + 42
        set l to 6
        set t to 42
        set the bounds of the container
        window of folder this_folder to {l, t,
        r, b}
        end tell
end opening folder
```

Note the somewhat verbose approach needed to get at the bounds (top-left and bottom-right coordinates) of the window.

Although it's unrelated to folder actions (or Mac OS 8.5-specific scripting), it strikes me that a droplet script which combines this method of adjusting window position and size with the folder-scanning routine in the previous script could be useful. It could be written to stack nested windows neatly, or to ensure that the folder's window — and those of its subfolders — fit completely within your screen's boundaries.

PPP and Remote Access

As Mac OS 8.5 users will have already found, the old Open Transport/PPP functionality has been wrapped into the Remote Access control panel. Similarly, the scripting commands for both PPP and Remote Access are found together in Remote Access Commands (within Scripting Additions). As far as I can see, the commands are unchanged, but if you're trying to add sophistication to a script, you'll need to know where to look for the dictionary.

Apart from that, the only change seems to be an extra property in PPPStatusParam. The protocol property indicates whether PPP, ARAP or an unknown protocol was negotiated for the current session.■

Linux will give you more than the time of day, if you ask correctly.

By Geoffrey Bennett

Linux

A clock consistently displaying the wrong time can be infuriating, but Linux offers several options to set the hour of the day. First we'll look at the two clocks in your computer and how to set them, and then go through a few of the common programs relating to time.

All modern PCs have battery-backed clocks on their motherboards that keep track of the current date and time, regardless of whether the PC is plugged in or not. This clock is known by many different names, including 'hardware clock', 'CMOS clock', and 'real time clock' (or 'RTC').

When Linux boots, the hardware clock is used to set Linux's own clock, called the 'system clock'. Once the system clock is set, the hardware clock is ignored until the next time you boot.

With DOS and Windows, the hardware clock is usually set to the local time, but if you only run Linux on your computer, it is possible to set the hardware clock to UTC (also known as Greenwich Mean Time or GMT) and have Linux automatically calculate the correct local time based on your time zone. This even takes into account daylight saving, so you'll have one less electronic device to change the time on twice a year. You could of course keep the hardware clock in UTC even if you were running DOS or Windows, but the time would then always be incorrect in that OS.

Setting the time

Linux provides two utilities to set the timepieces in your computer; 'date' is used for the system clock, and 'hwclock' is used for the hardware clock. To set the system clock to 11pm on March 1, you would type:

```
date 03012300
```

The first two digits are the month, the second two are the day, and the last four are the time in 24-hour notation. If you need to set the year as well, just put it on the end (030123001999). Of course, you need to be logged in as root to change the current time.

The easiest way to set the hardware clock is to set it to the current system time. To do this, type:

```
hwclock --hctosys
```

If you want to keep the time in UTC, you need to specify the --utc option on the command line, and if you haven't already done so, you'll also need to tell Linux that the hardware clock is now in UTC. This is usually done by editing a configuration file such as /etc/sysconfig/clock.

As you may have noticed, the hardware clock in most PCs often runs slow or fast. The --adjust option to hwclock can automatically compensate for this error if it is consistently wrong; instructions on setting it up are available in the man page for hwclock.

Setting the time from another networked computer

The xntpd and rdate programs let you synchronise the time on your computer with that of another computer on a connected network. If you have a network of computers permanently connected to the Internet, you can run xntpd in the background, and it will keep the time on your computers to within milliseconds of the correct time. If your need for time precision is more modest and you only have a dial-up connection, you can use rdate to query a remote time server and set your clock.

Time zones

The symbolic link /etc/localtime is used to tell Linux which time zone you are in. This link should point to the appropriate time zone file in the /usr/share/zoneinfo directory (such as Australia/Sydney). Most distributions provide a utility (such as timeconfig or tzconfig) to present you with the list of time zones and set the link for you. Another advantage of storing your hardware clock in UTC is that you can move your computer to a different time zone, tell Linux where you are now, and not have to reset the time (this feature is probably more handy for someone who flies a lot with their laptop than someone with a desktop).

An expensive watch

If you ever happen lose your watch (but have a computer running Linux handy), you can run the date command with no options to find out the current date and time. You simply type date and the computer gives in the current date and time in the following format:

```
Mon Nov 16 21:30:00 CST 1998
```

Regardless of what time zone you are in and whether your hardware clock is set to UTC or local time, Linux's internal clock runs on UTC and it counts the number of seconds since midnight January 1, 1970 (for example, 911214060 for 9:30pm November 16, 1998) to calculate the date and time. Even the last modification dates of files are stored in this way.

One advantage of this is that people working remotely on a Linux computer (perhaps across the Internet) can tell Linux which time zone they are in, and all the times displayed to them will be adjusted for that time zone. This can be done by setting the 'TZ' environment variable. If you type export TZ=Australia/Adelaide and then type date, the computer returns the current time in Adelaide:

```
Fri Jan 15 11:57:10 CST 1999
```

You can compare this with other time zones in Australia by typing export TZ=Australia/Perth followed by date. The computer then returns the current time in Perth:

```
Fri Jan 15 09:27:22 WST 1999
```

You can also use this feature to find out the time in other parts of the world. For example, if you typed TZ=Europe/Paris date the computer would return the current time and date in Paris:

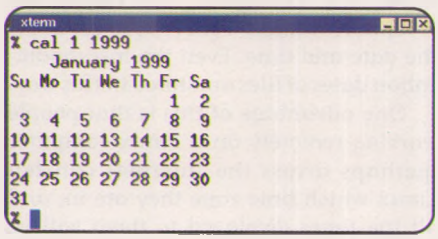
```
Fri Jan 15 03:27:35 EET 1999
```

Running out of time?

Since Linux stores time as the number of seconds since the beginning of 1970, it has no inherent year 2000 problem. For 32-bit architectures such as the Intel and compatible processors, however, the time is stored as a signed 32-bit number, which can have values ranging from approximately -2 billion to +2 billion. This number will overflow sometime in the year 2038, when the time will 'wrap around' to the early 1900s. Perhaps by 2038 we will all be using 64-bit architecture computers; by using 64 bits to store times, we can keep track of time for a few hundreds of thousands of millions of years.

Calendar

The cal program can be used to display the calendar for any month of any year. If you don't choose any options, it displays the calendar for the current month. If you type cal 1999, the calendar for the year 1999 will be displayed, and cal 1 1999 will display the calendar for the first month of 1999. Just don't make the mistake of typing cal 98 — this will display the calendar for the 98 AD, not 1998 AD.



Timing programs

Although you might think the 'time' command is used to find out the time, it is actually used for timing programs. If you want to know how long a program takes to run, you can type time program instead of just program, and when the program finishes running, some timing statistics will be printed:

```
% time ls -laR
[...]
ls -laR  0.61s user 1.35s system 40% cpu
4.894 total
```

The last number is how many seconds the program took to execute. The other numbers say how much CPU time was used by the program ('user'), by the operating system on behalf of the program ('system'), and percentage CPU time used while executing.

Scheduling

The cron and at commands let you run programs at some later time or date. The difference between the two is that cron is used to run programs at regular intervals (such as '6pm every Sunday', or 'every 15 minutes'), and at is used when you want to run a program just once at a specified time (such as 'tomorrow at 1:30am').

The at command

To create an at job, you type at followed by when you want the job to be run. You can then type one or more commands that you want executed, followed by Ctrl-D. Here are a few examples.

You can use your computer as an expensive alarm clock by getting it to start playing a music CD (track 4) at 7am. Type:

```
% at 7am
at> cdplay play 4
at> ^D
```

You can send yourself a reminder email in three days time by typing:

```
% at now + 3 days
at> echo "Don't forget to get Bob's birthday
present." | mail -s "reminder" geoffrey
at> ^D
```

If you want to download a large file later on when you're not around, type:

```
% at midnight
at> wget ftp://ftp.aarnet.edu.au/ls-lR.gz
at> ^D
```

As you can see from the examples, there are a variety of ways to specify when you want a job to be executed. For more information on the sorts of time specifications you can use, see the at man page.

Since you may or may not still be logged in when your 'at' job is run, the system will email to you any output produced by the commands that are run instead of displaying it on your terminal.

Each job that you submit gets assigned an ID number which you can use later to cancel the job or show the commands that it will execute. If you forget the number, or want to check when a job is due to be executed, you can type atq. To remove job number 12, use atrm 12, or to display the commands that will be run, use at -c 12. When you display a job, you'll find that there are a number of extra commands that are run before yours; these commands set up the job so that it runs in an environment as similar as possible to the environment where you started the job.

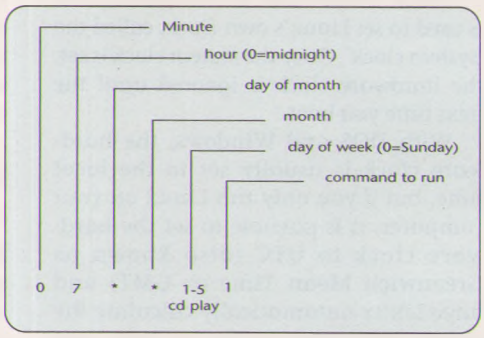
The Cron command

The Cron program is responsible for executing commands on a regular basis. For example, at can be used to wake you up tomorrow morning, but if you wanted to be woken up every morning Monday through to Friday at 7am, then you should use the cron program.

The list of cron jobs you want executed are stored in a crontab file; to create or edit this file you can type crontab -e. Each line in this file specifies a particular cron job to be run. To implement the alarm clock mentioned above, you would need to enter:

```
0 7 * * 1-5 cdplay play 1
```

You can consider the line to be broken up into six fields as illustrated in the figure below.



An asterisk is a wildcard (in effect, 'doesn't matter'), so the cdplay play 1 command will be run all year round. For more information on the specification, see the crontab(5) man page (type man 5 crontab).

If you want to run more than one command, it will most likely be tidier if you write a shell script to do what you want, then run the shell script from your crontab file.

Other uses for cron include automating backups; checking for free disk space and emailing you if you're getting low; downloading the latest weather map to use as wallpaper; regularly removing backup files, or compressing files that haven't been accessed for a long time; and automating the creation of Web page access statistics.

Further uses are only limited by your imagination! As with at jobs, if your cron job produces any output, the output will be mailed to you instead of displayed on a terminal.■

Workshop

Putting variables to work.

By Michael Smith

Simple C++

Last month you were introduced to functions and variables. Now you can put them to work, beginning with a short program that computes the circumference of a circle.

```
#include <iostream>

int main()
{
  double radius, circ;
  const double pi = 3.14159265;

  // GET THE RADIUS
  std::cout << "Computing a circle's circumference.\n\n";
  std::cout << "Enter the radius:\n";
  std::cin  >> radius;

  // COMPUTE THE CIRCUMFERENCE
  circ = 2*pi*radius;

  // OUTPUT THE RESULT
  std::cout << "The circumference is" << circ << "\n";

  return 0;
}
```

Just like last month's example, you include the iostream header that contains the definitions for stream I/O.

You begin the program by declaring some variables, in this case, two double precision floating point variables to hold the values of the radius and the circumference. You also declare a constant, pi. The generic term for the name of a variable or constant is 'Identifier' (see 'Identifiers' on the next page). When you use C, the declarations must be at the beginning of a block of code, but in C++ you can declare them anywhere in the block — although you can't use them until they have been declared. There is some debate about the best place to put declarations. Some people prefer to put all declarations at the top of a block of code, as shown in the example above. Other people prefer to put declarations close to the identifier's first occurrence. For short functions, where the whole function can fit on a single screen, I usually declare all variables at the top. For longer functions, if a variable is used in a small area of the function, I'll declare it close to that area. If it is used in several places, I usually declare it at the top. If you want a simple rule, I would suggest that you generally declare all constants at the top.

The first action of the program is to output some text using the std::cout stream, which was discussed last month. Then you read in the radius using std::cin. The std::cout stream is an output stream, and std::cin is an input stream. Like output streams, input streams are fairly complex. For now, let's leave them in the 'trust me, it works' category.

You now compute the circumference and output the results using std::cout. Finally you return zero.

Functions

To date, both of the example programs have used just one function: main(). This is OK for trivial programs, but most useful programs are much too complex to contain all of the logic in one function. In general, a program will contain multiple functions. The main() function will call one or more other functions, which in turn call other functions, and so on. It is considered good design to create a function for each task, so that each function performs only one task.

Let's try a *slightly* more complex example which uses two functions.

```
#include <iostream>

// CUBE FUNCTION
int cube( int val )
{
  return val*val*val;
}
int main()
{
  int i=5;
  double d=3.7;
```

Avoiding a common problem

In last month's column, I wrote "The main() function must always return an integer". After I submitted the column, one of the technical editors (who shall remain nameless) suggested that I had made a mistake. He might well be excused for thinking that, as some of the best-selling C and C++ texts recommend declaring the main function as 'void main()', to avoid the need to put a return statement at the end. This is quite unfortunate, as it is wrong. The C and C++ language standards clearly state that main should return an int.

Why is it a problem?

There is the obvious danger that the program will then return a (more or less random) value that the operating system might misinterpret as an error and do something undesirable with. But it could get worse.

On a stack-based system like Windows, the operating system may expect to find the return value on the system stack. If the compiler does not push something onto the stack, then the operating system might try to pop a nonexistent value from the stack, possibly corrupting the stack in the process. Can you spell GPF?

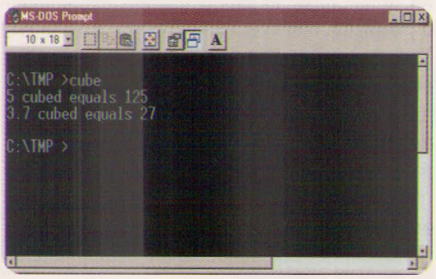
Now a lot of modern compilers are smarter than that. They will usually detect the bad main() declaration and clean up properly. But there is a risk that one day you will port your code to a compiler that is not quite smart enough. It's not hard to put a simple 'return 0;' at the end, so I suggest that you play it safe.

```
 // COMPUTE SOME CUBES
 std::cout << i << " cubed equals " << cube(i)
<< "\n";
   std::cout << d << " cubed equals " <<
cube(d) << "\n";

 return 0;
}
```

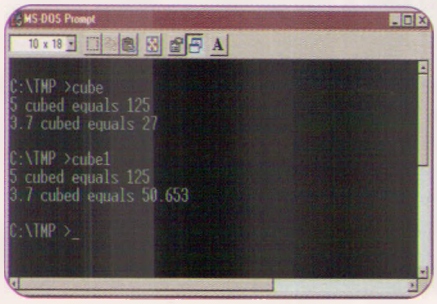
Here you define the function cube(). The function expects one integer argument (val), and returns an integer. In the main() function you call cube(i). The cube() function is executed, with the parameter val set to the same value as i (5). It all works quite well.

Or does it? cube(i) works fine, but cube(d) is less useful. The double value, d, gets truncated to an integer and you compute 3^3 instead of 3.7^3. What you need here is another version of cube() which works for doubles.




```
double cube( double val )
{
 return val*val*val;
}
```

In C you can't have more than one function with the same name, but in C++ you can — as long as the argument type is different. If you call cube() with an integer argument, the compiler will call the integer version of cube(). If you call it with a double argument, the compiler will select the double version of cube(). You could also create other versions of cube() for other data types such as short or float. In this case it is not really necessary. If you call cube() with a short argument, the integer version will be executed and a float argument will invoke the double version. Having multiple functions with the same name is called 'function overloading'. Remember that name, because you'll hear it a lot more before this series is finished.



References

Sometimes you may want a function to change the value of an argument which was passed to it. For example, the following program attempts to compute half of a given value.

```
#include <iostream>

// HALVE FUNCTION
double halve( double val )
{
 val = val / 2;
 return val;
}

int main()
{
 double d=10;

 // COMPUTE HALF
 std::cout << " Half of "  << d << " equals " ;
 halve( d );
 std::cout << d << "\n";

 return 0;
}
```

Now this may look OK, but when you run the program you get the output Half of 10 equals 10. Something is obviously fishy. C++ functions use the 'call by value' convention for passing arguments. This means that when a function is called in C++, the function gets a *copy* of each of its arguments. In this case, the copy of d gets halved, but that has no effect on d in the main() function. The alternative is the 'call by reference' convention, where the actual argument gets passed to the function. C++ also supports call by reference using a slightly different syntax. If you change the halve() function slightly you get this:

```
double halve( double& val )
{
 val = val / 2;
 return val;
}
```

By declaring val to be of type double& instead of double you declare val to be a reference parameter. Now every change to val in halve() performs the same change on d in our main() function.

You now get somewhat more satisfying output Half of 10 equals 5.

Another type: void

The data type void is a Claytons type: the type you have when you're not having a type. Our halve() function is returning a value, but it's not being used. This is a little wasteful. A better idea would be to declare halve() as a function which returns void — in other words, it returns nothing.

```
void halve( double& val )
{
 val = val / 2;
}
```

What could be simplier?

Next month we'll look at operators and arrays and lots of other neat stuff.

Identifiers

An identifier (name) consists of a series of letters, digits and underscores ('_'). The first character must be a letter or an underscore. This is followed by zero or more letters, numbers and underscores. Some compilers allow other characters, such as a dollar sign, but using such characters leads to non-portable code. This is usually a bad idea.

The compiler reserves certain words, such as int and return. These words must not be used as identifiers, but beyond that it's fair game.

Some valid identifiers include:

```
x X     c001 __     foo_bar     WordCounter really_long_identifier_name
```

Some invalid names include:

2up	(Begins with a digit)
Word Counter	(Contains a space)
foo~bar	(Contains the invalid character '~')
class	(This is a reserved word)

The case of letters is important. X is a different identifier to x. Also, class is a reserved word, but CLASS, Class and clAss are not. The C++ standard does not limit the length of an identifier. Some compilers do impose limits, but they are usually reasonably long.

READY TO DELIVER TO A DESTINATION NEAR YOU

MITAC BUILD-TO-GO

For those with immediate needs, MiTAC offers the Build-To-Go (BTG) Pursuit and MiStation Series. The BTG Series offer power, manageability and quality - the features challenging corporate demands and the affordability value conscious business needs.

BTGs are pre-assembled, pre-configured, pre-tested, stocked locally and ready to ship. They're off the shelf, hassle-free and provide the perfect solution to your growing needs.

When you're ready to purchase that next PC, call us at 1300 651 665, we've got all your popular configurations.



MiTAC Build-To-Order (BTO), the ultimate in flexibility, versatility and quality

Our BTO approach makes sure your get customised PCs how, when and where you need them. Pick the features you require until you have a MiTAC PC with your name written all over it.



All MiTAC PCs come with the latest Pentium Processors to ensure advance technology & performance to meet your needs.

Backed by MiTAC three years limited warranty with optional extended and on-site warranty available.

MiTAC

National Service and Support Line
1300 658 891

DEALER REQUEST - FAX THIS COUPON NOW!
Yes I wish to become a registered dealer of Synnex products. **Fax to: 03 9540 0588**

Name:

Company:

Address: Postcode:

Business Phone: Business Fax:

No. of Employees: No. of Sales Staff:

Business Type: OEM ☐ VAR ☐ Consultancy ☐ Distribution ☐ Dealer ☐

Proudly Distributed By

SYNNEX

Bridging the Gap between Vendors and Resellers

1300 651 665

www.synnex.com.au
www.mitac.com.au

APC 99

Refining the Java client and server programs presented last month, and adding a server written in C. **By David Williams**

Java

Last month we covered the theory and background of client/server programming. We finished with Java client and server programs, which you should have been able to compile and run. How the programs actually worked may not have been so clear. This month, we take a closer look at the classes Java provides for network communication, and then we'll enhance the programs.

Java provides several classes to facilitate socket programming. The main class is java.net.SocketImpl, which is an abstract class. It provides the socket operation policies but must be subclassed to provide an actual implementation. The two classes that will be used in practice are java.net.ServerSocket, which encapsulates a server socket, and java.net.Socket, which implements a client socket. Conceivably, the SocketImpl class can be changed to allow different underlying implementation policies, but this is not a common practice. The constructors and key methods of the two classes are shown in tables 1 and 2 respectively. Table 3 lists the key methods for a useful class, java.net.InetAddress (which has no constructors), that can be used to encapsulate IP addresses.

Table 1: java.net.ServerSocket constructor and key methods

ServerSocket (int port [, int time])	The sole constructor for a server socket,which binds the socket to the specified port. Optionally, the amount of time to listen for a connection can be specified.
Socket accept ()	Returns a connection on a new socket.
void close ()	Closes the connection.
InetAddress getInetAddress ()	Returns the address to which the socket is connected.
int getLocalPort ()	Returns the port to which the socket is connected.
String toString ()	Returns a String showing the socket's address and port.

Note: The constructor and the accept and close methods throw an IOException if an I/O error occurs.

Armed with this knowledge, the sample code we wrote last month might make more sense. In the server, a ServerSocket is defined in the same manner as any other Java variable, and a port number is given in its constructor (port 2000). The port number can be any integer value or variable. As mentioned, however, only values above 1,023 should be used for private use. The server will sit and listen to the specified port, but cannot actually do anything. You must therefore use the accept call to block execution of the program until a client makes a request. At this point, the accept method will terminate, returning a java.net.Socket object. This Socket will be used in the same way java.net.Socket is used in a client, enabling network communication. The ServerSocket's main purpose is to wait for a connection and pass this to another socket for processing. Following the accept method, a DataInputStream is constructed and associated with the new socket. Its readLine method is then called and the returned string is displayed on the screen. Finally, both sockets are closed and the program terminated.

Table 2: java.net.Socket constructor and key methods

Socket (String hostname, int port [, boolean isStream])	Constructor to create a socket and connect it to the specified hostname and port. The socket will be a stream socket if isStream is absent or is true, otherwise will be a datagram socket. An UnknownHostException is thrown if the host is not found.
Socket (InetAddress address,int port [, boolean isStream])	Constructor to create a socket and connect it to the specified IP address and port. The socket will be a stream socket if isStream is absent or is true, and a datagram socket otherwise.
synchronized void close ()	Closes the socket.
InetAddress getInetAddress ()	Returns the address to which the socket is connected.
int getPort ()	Returns the port to which the socket is connected.
InputStream getInputStream ()	Returns an input stream for the socket.
OutputStream getOutputStream ()	Returns an output stream for the socket.
String toString ()	Returns a String showing the socket's address and port.

Note: The second constructor and the close, getInputStream and get OutputStream methods throw an IOException if an I/O error occurs.

The client begins by creating a Socket object using the local host (the address is returned from a call to InetAddress .getLocalHost ()) and port 2000. The port numbers of the client and the server must match otherwise they won't be able to communicate. Note that the local host does not need to be used — the server and the client can be run on entirely separate machines. The program then proceeds to construct a PrintStream which is associated with the socket. Its println method is called to send a message to the server and the socket is then closed and the program terminated. If the output is buffered, you can use the flush method to force the completion of any latent writes.

This is a simple demonstration of

MicroGram Computers

Colour Serial Terminal



This terminal emulates WY-120/60, WY-325, WY-50+, TVI910+, TVI925, PCTERM, PC Graphics, ADDS A2, VT52, VT100, VT220 and Console ANSI. It is used in conjunction with a standard VGA colour monitor and a standard AT keyboard. There are two serial ports, one for the host & one for a serial printer as well as a standard parallel port. Ideal for XENIX, UNIX, System Manager etc.

Cat. 1026 **Colour Terminal** $469

TCP/IP Ethernet LAN Terminal

An Ethernet TCP/IP terminal suitable for UNIX network environments, it supports multi sessions & multi hosts and is compatible with WY-60, WY120, WY-50+, PC Term, ANSI & DEC VT220 etc. One BNC, one RJ45, two serial ports & a parallel port are standard.

Cat. 1104 **TCP/IP Ethernet LAN Terminal** $499

PCMCIA Card Drive for Desktop PC



This high performance PCMCIA Drive provides two front-access sockets on the 3.5" front bay and is connected to the Interface Adapter by flat ribbon cable. The drive supports DOS & Windows 3.1x, Windows 95, Windows NT 3.5x & 4 and OS/2 Warp 3.0 & 4.0.

Cat. 6121 **PCMCIA Card Drive for Desktop PC** $219
Cat. 6458 **PCMCIA Card Drive & FDD** $399

Compact Flash Reader/Writer

Transfer your images to your PC fast. This reader/writer appears as another "drive" in your computer and connects via the parallel port.



Cat. 6459 **Compact Flash Reader / Writer Parallel Port** $189

PCMCIA & CF Reader/Writer



Digital Film Reader is an affordable PCMCIA Hard Disk, ATA Flash, or CompactFlash Card reader and writer solution for PC's and portable computers. It has one CompactFlash socket and one PCMCIA Type II or III ATA Card socket. It uses the PC's parallel port (pass-through) to transfer data.

Cat. 6457 **PCMCIA & CF Reader/Writer Parallel Port** $299

ATA to IDE Drive



The Card Master-ATA IDE is a PC card drive which allows a PC with an IDE controller to use a PCMCIA ATA Flash, ATA Hard Disk Drive or Compact Flash card. This card drive connects directly to the IDE interface. It does not require card and socket services.

Cat. 6469 **ATA to IDE Drive** $129

Web-Based Training from $9.95 per month*

Learn about *Microsoft* Office, Word, Access, Excel, *Windows 95*, FrontPage, C++, HTML, Internet Explorer, Windows NT and more!

A number of courses are "Microsoft Certified Professional - Approved Study Guides"

*Full details at www.tol.com.au

Now over 200 courses are available

CompactFlash Card Adapter



The CompactFlash Card Adapter converts a CompactFlash Card into a PCMCIA Card. Allows compact flash cards to be read & written to in a standard PCMCIA drive.

Cat. 21028 **CompactFlash Card Adapter** $49

Console Extenders



The Console Extender enables a user to operate their computer from a distance. Installation is as easy as connecting a Console Extender between the computer and the keyboard, mouse, and monitor. Maximum transmission distance is 80m.

Cat.11624 **Console Extender for AT Computer** $299
Cat.11625 **Console Extender for PS/2 Computer** $309

SmartPad Digitizer



The SmartPad digitizers allow use of both mouse & pen so there is no need to reconfigure each time you want to use one or the other. You can also use the pen as a mouse! Perfect for CAD/CAM applications. Templates for *Auto*CAD R12 &13 & drivers for ADI, Windows 3.1x, Win 95 provided.

Cat.8419 **Smart Pad Digitizer 12" x 12"** $349
Cat.8185 **Smart Pad Digitizer 18" x 12"** $825

Printer Extender to 400m Non Powered



Basically a parallel to serial converter at the computer end and a serial to parallel converter at the printer. A simple elegant solution to operating a printer at up to 400m from the computer. Includes a 10m length of 4 wire telephone cable to connect the sending and receiving modules.

Cat.12020 **Printer Extender to 400m Non Powered** $64

Diagnostic Card - PCI & ISA Bus

A dual bus diagnostic card! Simply invert the card to test the other bus. It identifies POST BIOS faultcodes & displays error codes. Diagnostic error codes are provided for AMI, AWARD & Phoenix BIOS. Suitable for 486 / 586 / 686 / Pentium II compatible systems.

Cat. 3362 **Diagnostic card for PCI / ISA** $249
Cat. 3128 **Diagnostic Card for ISA** $69

Low Noise 300W Power Supply

A temperature controlled regulator varies the speed of the cooling fan in response to power supply temperature. It is virtually silent under normal conditions and has an ATX format.

Cat. 8714 **Low Noise 300W Power Supply** $189

Bi-directional & ECP/EPP Cards



Bi-directional parallel ports with an 83 byte FIFO buffer, configurable as LPT1 to LPT6 and with interrupts 3 to 15. Achieve data transfer rates up to 1Mb/sec with ECP/EPP.

Cat. 2314 **Bi-directional 1 Port** $45
Cat. 2315 **Bi-directional 2 Port** $61
Cat. 2316 **Bi-directional 3 Port** $97
Cat. 2235 **ECP/EPP 1 Port** $79
Cat. 2236 **ECP/EPP 2 Port** $94

Also available, are single & dual port PnP PCI printer cards. Support provided for DOS, Win 95/98 & NT.

Cat. 2618 **1 Port Printer PnP PCI** $159
Cat. 2619 **2 Port Printer PnP PCI** $179

BIOS Upgrade



If your motherboard BIOS does not support LBA (Logical Block Addressing) or hard drive capacities greater than 528Mb, overcome these limitations with our BIOS card. Supports hard drives up to 8.4GB capacity & does not need any software.

Cat. 2564 **HDD ISA BIOS Card** $59

Also available, a BIOS controller card with support for 4 HDD's and 2 FDD's & I/O.

Cat. 2565 **HDD Cont ISA IDE BIOS** $107
Cat. 2588 **HDD Cont ISA 4HDD216550 1P/1G** $139

Year 2000 BIOS Card



Even Pentium motherboards are not immune to the Year 2000 bug! This Year 2000 BIOS Card solves the problem of progression from 1999 to 2000 as well as 21st century leap years. It is also double-buffered to take care of the Crouch-Echlin effect. **"It worked well in fact, and the machine passed all the tests we threw at it."** March Electronics Australia magazine.

Cat. 3359 **Year 2000 BIOS Card** $129

E & OE All prices include sales tax **MICROGRAM 0499**

Online catalogue & shop at www.mgram.com.au

Phone: (02) 4389 8444 sales@mgram.com.au info@mgram.com.au Fax: (02) 4389 8388

Dealer Enquiries Welcome

Australia-Wide Express Courier (To 3kg) $10

We welcome Bankcard Mastercard VISA Amex

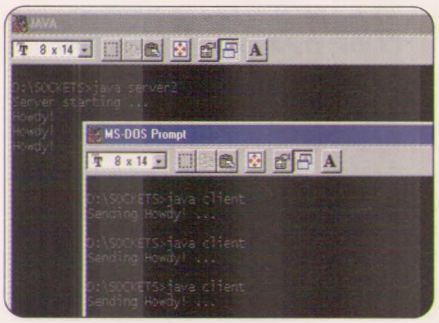
Unit 1, 14 Bon Mace Close, Berkeley Vale NSW 2261

Web site: www.mgram.com.au

FreeFax 1 800 625 777

Vamtest Pty Ltd trading as MicroGram Computers ACN 003 062 100

FreeFax 1 800 625 777



client/server programming, but it is not very useful in practice as the client and server don't greatly interact and the socket terminated after only one client message. The server usually returns information to the client (writing to the socket in the same way the client did) and the server normally runs continually, processing multiple client requests. It usually only terminates when the computer is shut down.

In fact, this is what makes servers more complex than clients. Many clients can be run either on the same machine in a multitasking environment or on many different machines, but there is only one server on a machine to process incoming requests. The server must therefore not only continue to run after it has processed requests, it must also deal with client requests concurrently. Java easily caters for this using threads. A more complicated multithreaded server program that is able to respond to many client requests simultaneously follows.

```
import java.net.ServerSocket;
import java.net.Socket;
import java.io.IOException;
import java.io.DataInputStream;
import java.lang.System;

class ServerThread extends Thread
{
   DataInputStream datain;
   Socket me;

     public ServerThread (Socket s) throws
IOException
   {
     me = s;
       datain = new DataInputStream (s.get-
InputStream ());
   }

   public void run ()
   {
     try
     {
       System.out.println (datain.readLine ());
       me.close ();
     } catch (IOException E) {};
   }
}

public class server2
{
 public static void main (String args[]) throws
IOException
 {
  ServerSocket s = new ServerSocket (2000);
   Socket sock;
   ServerThread handler;

   System.out.println ("Server starting ...");

   while (true)
   {
     sock = s.accept ();
     handler = new ServerThread (sock);
     handler.start ();
   }
 }
}
```

The screenshot above shows the client has been run three times — each time the server responds and continues to respond.

This new server, server2, creates a new thread to process each incoming request. Once accept has returned a Socket object, a ServerThread is created and its start method is invoked. The server continues to accept requests by running in a simple while loop. Although the internal design of the server has changed considerably, it still prints messages as before, and the very same client program can still be used. The ServerThread contains a constructor that initialises some variables, and a run () method, as required by any thread. The run () method, however, is trivial, simply displaying the message read from the socket. Nevertheless, the code shown at left is the beginning of what could become a very complex server if the run () method were replaced with something more substantial.

It is important to note that not only simple string messages can be transmitted. The input and output streams of the socket can be used like any other Java stream to transmit many and varied objects. The client and server can then interact by transmitting custom data structures. The server can process the client's request in some way and return a different object in response. The usefulness of sockets in a client/server environment is limited only by your imagination. As you begin to work with sockets, you will become more familiar with their use and things will become easier.

Note that the socket interface is common among many different TCP/IP environments. Last month I mentioned a C++ server that communicated with a Java client. Server.c, a C version for Unix developed in this article, can be found in the Workshop section of **apcmag.cd** — you'll notice how much more complicated it is than the Java version! This server will still only print a message, but the same Java client can be used to call it.

Client/server programming is a useful paradigm in computing. Coupled with the ease and advantages of Java, it is a powerful tool. Client/server programming is a useful method to begin migrating code to Java. It enables you to take advantage of the features of Java, while communicating with legacy code that may be in a different language or running on a separate part of the network. It also allows you to create distributed applications. If applications are well designed, the user will never be aware that they are accessing remote parts of the network. The possibilities are endless and the advantages many.■

Table 3: java.net.InetAddress key methods

static synchronized InetAddress getByName (String hostname)	Returns an InetAddress object for the given hostname, expressed in the usual format (e.g. machine.domain.com).
static InetAddress getLocalHost ()	Returns an InetAddress object for the local host
static synchronized InetAddress getAllByName (String hostname)	Returns an array of all InetAddress objects for the given hostname.
String getHostName ()	Returns the hostname for the InetAddress.
String toString ()	Returns a String with the corresponding IP address for the InetAddress.

Note: This class has no public constructor; the methods getByName (), getLocalHost () or getAllByName () must be used to instantiate an object. These three methods all throw UnknownHostException if the address is unknown.

Solutions for your Business.....

MCT AUSTRALIA

Give your business a competitive advantage with MCT computers. The best computer a company can buy.

MCT Professional System

- Intel® Pentium® III 500Mhz CPU
- Intel® SE400 BX-2 board
- 128Mb 100MHz SDRAM
- 512k pipeline burst Cache
- 13Gb Ultra DMA 66 Hard drive
- 3.5" 1.44 Mb Floppy Drive
- 16Mb Riva TNT 128 AGP Card
- 48x EIDE CD-ROM Drive
- Creative 32 bit PCI Sound Card
- Miditower case with ATX power
- 17"CTX .25 dip Monitor with Trinitron® tube
- Microsoft® Mouse, 104 Keyboard
- 300W speaker with Sub-woofer
- Microsoft® Windows 98 CD
- Microsoft® Works suite 99
- 56k U.S. Robotics Winmodem
- 3 years Onsite Warranty



Only $4699

MCT Multimedia System

intel inside pentium III

- Intel® Pentium® III 450MHz CPU
- Octek Rhino ZX Board
- 64Mb 100MHz SDRAM
- 512k pipeline burst cache
- 4.3Gb Ultra DMA 66 Hard drive
- 3.5" 1.44 Mb Floppy Drive
- 8Mb AGP Card with Intel® 1740 chip
- 48x EIDE CD-ROM Drive
- Creative VB16 Sound On Board
- Minitower case with AT power
- 15" CTX .28 dip Monitor
- Mouse 104 Keyboard
- 200W speakers
- Microsoft® Windows 98 CD
- 3 years Onsite Warranty



Only $2599

MCT AUSTRALIA

WWW.MCTCOM.COM.AU

Head Office Tel: 02-9642 3388 Fax: 02-9742 5985
Perth Tel: 08-9472 7788 Fax: 08-9472 7780
Brisbane Tel: 07-3857 6668 Fax: 07-3857 6669

Quality endorsed Company ISO9002 Lic 10107 Standards Australia

The intel inside Logo and Pentium are registered trademarks of the intel corporation and MMX and Celeron are trademarks of intel corporation

*Each month this page lists all the Shareware files that can be found on **apcmag.cd**. Simply browse to the Workshop section to find the files and related reviews.*

Shareware summary

Windows

BiblePro 6.0
Bible study program with multiple translations, useful search and note-taking tools and many other features.

Virtual Rosary 3.5
Simple program to assist with learning or reciting the rosary. Includes English, Latin and Spanish texts.

Theophilos 2.6
Powerful Bible study program based on the King James version. It has numerous tools and can be expanded with a wide range of additional modules.



Prayer Times 4.0
Package to assist Muslims in their daily observances. Can determine precise times and direction for prayers for any location.

Pagan Daybook II
A calendar/screensaver which displays observances for pre-Christian religious traditions of Western Europe.

Crucifixion Theme
This desktop theme emphasises the religious significance of Easter.

OS/2

Albatros Media Player 2.0b6
A fully functional multimedia suite. This multimedia (video and audio, but not stills) player will take just about any file format you can throw at it, and it's not heavy on the CPU either!

Embellish 2.01
Visual effects (fish-eye, oil painting, melting, swirl) and colour alteration (greyscale, gamma adjust, histogram) are available. Some filters are predefined, but you can also design your own.

MainActor 1.5
This one does just about everything! MainActor is a modular multimedia-processing package that lets you load, edit, play, save and convert all major animation formats and the most common picture formats.

PMView 1.04
This robust general-purpose graphics viewing and manipulation utility has most of the standard manipulations available, including section transformation (mirror, rotate, sizing) and colour adjustment (conversion, gamma correction, brightness, contrast, RGB balance). Almost every file format ever conceived is supported.

QuickMotion 2.0
QuickMotion extends MMPM/2 to add QuickTime, QTVR (virtual reality), QT-MIDI (Musical Instrument Digital Interface), and Windows-style AVI movie support to OS/2. Included is QuickFlick, a native 32-bit OS/2 movie player and streaming video/audio plug-in for Netscape Navigator.

Mac OS

Uli's Moose 2.0
The classic Talking Moose is revived and updated — still free, and as irreverent as ever. The Phrase Editor now accepts plain English, if you get tired of the more than 1,300 phrases supplied.

DeskBots 1.6
DeskBots is the Moose on steroids. It's more expensive than the Moose, but potentially more flexible. It has been updated to feature a family of robots, multiple personalities, background sounds, editable phrases, and AppleScript control.

Kineticon 1.4
Kineticon brings animated icons to your folders, applications and documents. An easy-to-use editor makes generating your own animations a breeze. System alerts and the Trash can also be animated. Shades of Oscar the Grouch!

MyEyes 2.3.2
Remember the Eyeballs INIT? Add colour, a library of eye styles, a 'blink and snooze' timer, and movable eyes, and you have MyEyes to follow your every move. Never lose that cursor again!

Yo 1.0
How about transforming your System alerts by randomly selecting from up to 1,000 sounds? Yo will allow you to do this, and to allocate each sound a priority and a volume level. Sounds can also be imported or recorded.

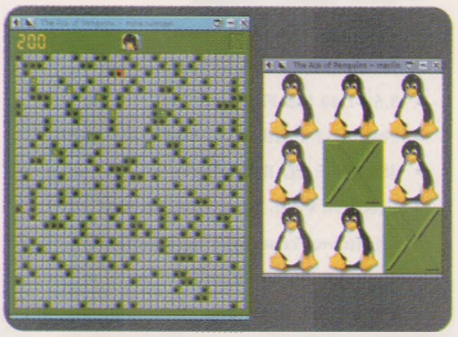
Kaleidoscope 2.1.1
Arguably the most popular appearance enhancement for the Finder, Kaleidoscope has been updated, and is now Mac OS 8.5.1 compatible.

Linux

Postilion
Fully featured GUI email client based on TkRat with a Mail.app look and feel. It supports virtual folders, which are useful for multiple incoming message sources.

Code Crusader
Free programming IDE with a slick graphical interface and an impressive source code editor. Integrates with Code Medic to provide a very capable development environment.

Ace of Penguins
Excellent games suite for Linux featuring popular titles such as Minesweeper and Solitaire.

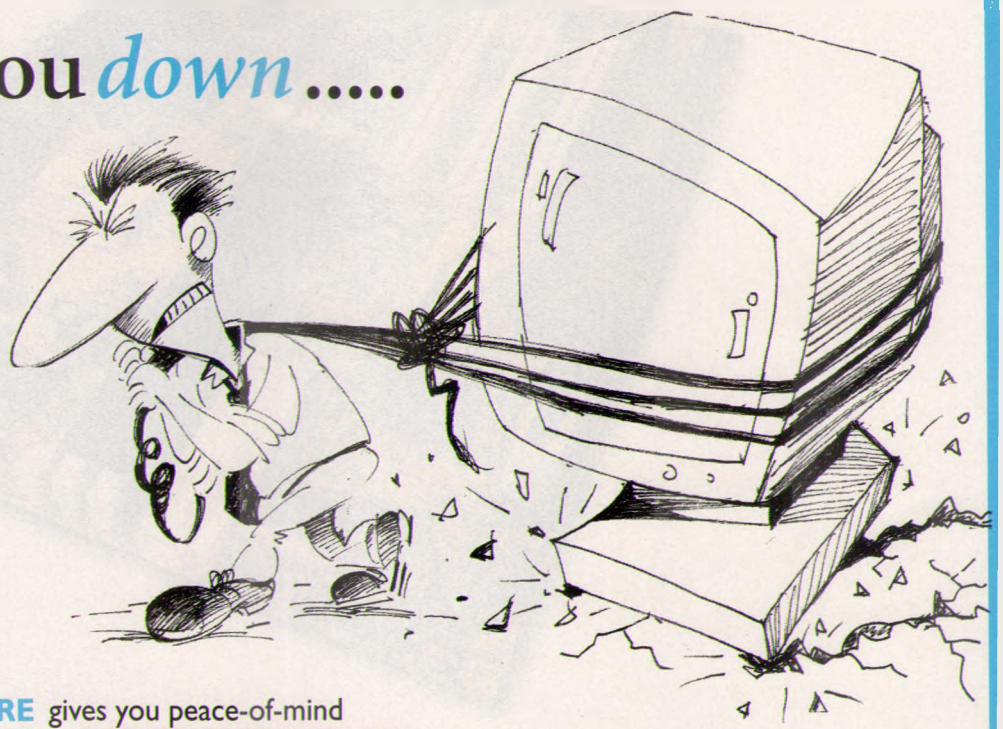


GQ
Simple, generic LDAP client with a GTK interface. Useful for browsing LDAP servers and testing your own implementations.

Stamp
Stamp is a cool utility for adding time-stamp and title information to Webcam images from digital cameras or scanned photos.■

Australian Personal Computer Channel
PRODUCTS FOR RESALE

If the *cost of running* your computer network is weighing you *down*.....



AVO COMPUTA-CARE gives you peace-of-mind knowing your computer network will be kept running smoothly. We offer you unlimited on-site maintenance and telephone support on your computer network at an affordable set price. Our turn-around time is a guaranteed four hours response within the Metropolitan areas during business hours.

By turning to **AVO COMPUTA-CARE**, you will be getting more than just support and maintenance for your network. You will be enlisting the wholehearted support of true industry professionals. As a result, your business is bound to feel the benefits of our association one way or another.

So. if your computers are important to your business, give us a call and we'll come around for a friendly chat – no obligations.

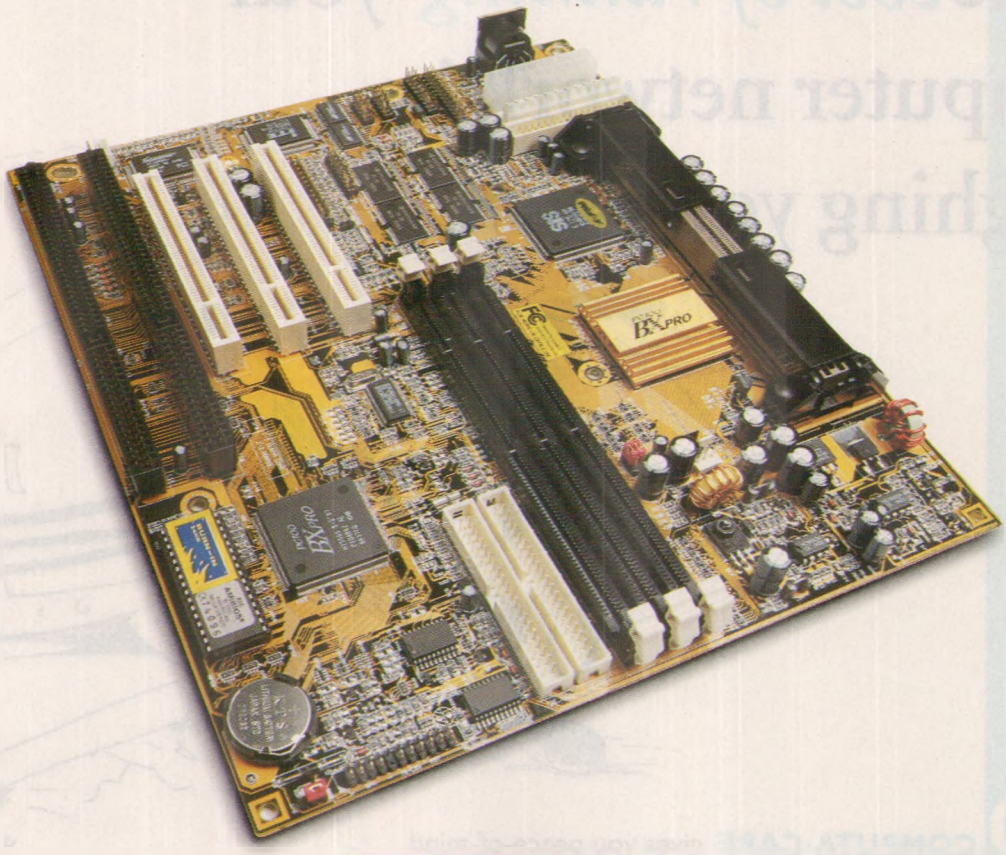
AVO Electronic Systems Pty Ltd
29 Dickson Avenue Artarmon NSW 2064
Tel: (02) 9906 2655 Fax: (02) 9906 2735

AVO Computers Pty Ltd
Shop 8 99 Mount Street North Sydney NSW 2060
Tel: (02) 9959 3328 Fax: (02) 9959 3373

PROTAC®

DC CHIPS
Group of Companies

Be Competitive



START WITH A DC CHIPS MOTHERBOARD

THE ONLY MOTHERBOARD THAT CAN HELP AUSTRALIAN PC ASSEMBLERS TO COMPETE WITH US-BRAND PCS IN TERMS OF PERFORMANCE, QUALITY, SERVICE AND OF COURSE, PRICE

The Advanced features of the PC 100 BX PRO mainboard include:

- Supports Pentium II 233-500MHz/Celeron 266-333MHz.
- On-board 3D Sound Pro supports HRTF positional audio, Direct Sound 3D with Aureal 3D driver.
- Provides 3 DIMMs SDRAM/EDO/FPM memory modules.
- Trend Micro's ChipAway Virus and PC-cillin (oem) included.
- Optional ATX form card for 2x USB, 1 x PS/2 and 1 x infrared interface.

Additional:

- M747(BXpro): AT form factor, on-board 64-bit 3D AGP graphics accelerator with 8MB SDRAM.
- M730(BXpert): Micro ATX form factor, on-board 64-bit 3D AGP graphics accelerator with 8MB SDRAM, built-in hardware thermal power and fan speed monitor circuit.
- M726 (BXcel): AT form factor, built-in hardware thermal power and fan speed monitor circuit, bundled AMI desktop client manager to detect abnormal conditions.
- M577 (TX AGPpro): 100MHz Super socket 7 with AGP slot, on-board 3D sound Pro, 1MB Cache.

Distributors: NSW: Busiquip (02) 9660 7700, Diginet (02) 9647 1266, Ecom (02) 9299 0022, Leading Pacific (02) 9713 9988, Mode Computers (02) 4274 3377, Tecom (02) 9807 6590, VIC: Crown (03) 9376 0166, Omega (03) 9800 3444, Quality (03) 9876 9910, QLD: Dat (07) 3367 3800, Omega (07) 3272 2888, SA: Leader (08) 8221 6222, WA: NT Computer (08) 93221110

Web Excel

V.90/Rockwell K56flex Dual Mode



Most reliable 56k Data/Fax/Voice Modem

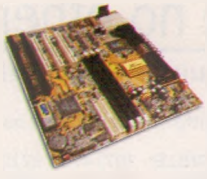
WE LEAD. OTHERS FOLLOW.

PC CHIPS & PROTAC Group, the World's <u>NO.1</u> manufacturer of motherboards, graphics cards and sound cards, has already made its mark in Australia

In 1998, the group produced 13 million pieces of motherboards, 6 million pieces of graphics cards and 3 million pieces of sound cards for worldwide computer market. For every 100 PCs produced today at least 15 of them are using our mother-boards. To find out how we can help clone PC makers to be competitive, please call Now.

PROTAC®

Web Site: www.protac.com.au Email: support@protac.com.au
Sydney: Unit 3, 28 Martha Street, Granville, NSW. 2142 Ph (02) 9637 8999 Fax (02) 9637 8909
Melb: Unit 7, 2 Sarton Road, Clayton, VIC 3168 Ph (03) 9560 7188 Fax (03) 9560 7288



PC Chips Motherboards



Ricoh CD-RW Drives



AudioExcel Sound Cards



VideoExcel Graphics Cards



WebExcel Fax Modems



Videal Keyboards

Have You Seen our Brothers?

Brother ranked 2nd in the 1998 "National Business Bulletin" Business Equipment Supplier Awards in the Printer Equipment category (December 1998 issue)

The Brother MFC-7160C Colour Multi Function Centre won Editor's Choice in both "Australian Personal Computer" and "PC Magazine" in February 1999

Brother Laser Printers

Brother laser printers are fast – these models print at a blazing 10 pages per minute. Rather than waiting for documents, you can be working on them.



HL-1070

- 10 ppm print speed
- True 1200 x 600 dpi resolution
- Dual bin (200 sheets x 2 bins)
- PCL 6, PostScript 2 emulation
- USB interface
- 4MB memory standard (36MB max.)



HL-1050

- 10 ppm print speed
- True 1200 x 600 dpi resolution
- 200 sheet paper tray
- PCL 6 emulation
- USB interface
- 4MB memory standard (36MB max.)
- Straight Paper Path



HL-1040

- 10 ppm print speed
- True 600 x 600 dpi resolution
- 200 sheet paper tray
- 2MB memory standard
- Straight Paper Path

Brother Multi Function Centres™

Brother Multi Function Centres are making it affordable to work from small offices and home offices. Save on the cost of purchasing and maintaining up to 8 machines, with much less desk space.

MFC-7160C

COLOUR

"8 in 1"

- Plain Paper Fax 14.4 kbps dual access, 270 page memory
- Colour Printer 1440 dpi
- Colour Scanner 1200 dpi (interpolated)
- Colour Copier (no PC required)
- PC Fax (Colour fax with other MFC-7160C users)
- Colour Video Printer & Video Capture from video sources
- Message Centre digital answering machine 99 minutes
- Speaker Phone hands free with Caller ID



MFC-9500



"7 in 1"

- Laser Fax 14.4 kbps
- Laser Printer 600 dpi
- Scanner 600 dpi (SI)
- Copier
- PC Fax
- Message Centre
- Phone

MFC-6650MC



MFC-970MC



"7 in 1"

- Plain Paper Fax 14.4 kbps
- Printer 200 dpi
- Scanner 400 dpi
- Copier
- PC Fax
- Message Centre
- Speaker Phone with Caller ID

brother

You can always rely on your brother.

Like no other.

Distributed by:

EDGE COMPUTER

Dealer enquiries welcome!

HEAD OFFICE: 60 O'Riordan Street, Alexandria NSW ..(61 2) 9353 9200

WWW: http://www.edge.net.au

SYDNEY:(02) 9906 5550 MELBOURNE: ..(03) 9416 0099 BRISBANE:(07) 3256 0688 ADELAIDE:(08) 8346 0599 TOWNSVILLE: .(07) 4721 6222
PARRAMATTA: (02) 9890 2577 ROWVILLE:(03) 9755 5755 PERTH:(08) 9478 2811 NEWCASTLE: ...(02) 4956 8955 TASMANIA:(03) 6245 0888

Brother is a registered trademark and Multi Function Centre is a trademark of Brother Industries Ltd. EDGE is a registered trademark of Edge Technology Pty Ltd.
Specifications and pricing are subject to change without notice. *Recommended promotional retail price; actual selling prices may vary.

PCSupermarket

PRODUCTS AND SERVICES FOR DIRECT PURCHASE

For advertising details contact
Justin Cain on (02) 9288 9157

http://lottonet.com.au

Produced and distributed by
DIETNER
Linking People with Money

GOLD Fx-pro

LOTTONET™

ONLY $ 189 + $7.00 p/p

Hundreds of Lottonet winners each week





Why are they winning ? Because Lottonet allows them to play with large systems at extremely low costs. Lottonet Gold Fx users pay up to 96 % less for system entries and still retain absolutely identical chances of matching the winning numbers as with full cost systems. There are no reasons for smart lotto players to stay constant losers. The LOTTONET Gold Fx virtually guarantees you to begin winning quickly and consistently on Lotto, Pools or Keno!

Don't be a dreamer, get Lottonet now and be a winner.

Lottonet Gold Fx-pro is the largest and most effective professional Lotto, Pools, Keno and Powerball computer program. It offers 960 systems (from 9 to 40 numbers), it has 98 databases and the best ever statistical and prediction options. Are you determined to win? If so, order Lottonet Gold Fx now.

5 from 6 Guarantee - 2 Bankers	
System with	Cost to play
12 numbers	$ 4.65
14 numbers	$ 9.10
16 numbers	$ 16.00
18 numbers	$ 25.60
20 numbers	$ 38.85
22 numbers	$ 54.40
24 numbers	$ 75.80
26 numbers	$ 181.40
28 numbers	$ 130.95
30 numbers	$ 166.85
32 numbers	$ 208.45
34 numbers	$ 255.75
36 numbers	$ 313.10
38 numbers	$ 373.90
40 numbers	$ 450.45

$ 2.500 COMPENSATION

payment will be made to you if any Lottonet Gold Fx-pro computed system fails to win minimum one Division 3 prize, when 5 from 6 computed systems are used, or fails to win First Division, when 6 from 6 computed systems with 1, 2 or 3 key numbers (Bankers) are used!



Size: 100 x 112 x 55

* This fabulous analog quartz alarm desk time piece yours absolutely free with this mail order!

Order line: 1 800 - 818 898

Name | Address

Payment made by: Chq ☐ Money Order ☐ Cash on Delivery ☐ Master c. ☐ Bank c. ☐ Visa c. ☐ Amex ☐

City | P/Code

☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ / Expiry Date

Sign please

Mail to: DIETNER, L.P.O. Box 6001, KARINGAL, VIC 3199

* This special free offer is available to first 200 APC readers ordering by mail. Available from October 1998 issue of the magazine. (Batteries not included)

The Quickest & Easiest

Guarantee your copy of MS Office 2000 TODAY!

Customers can purchase any Office 97 application before July 31, 1999 and get the corresponding Office 2000 application for the cost of shipping and handling.



- **Buy Works 4.5 ($99) and trade-up: Standard trade-up $339* Professional trade-up $439***
- **MS Office 97 Value Pack $519***

Call for Academic prices.

*Pricing after $50 cashback - redeemable from Microsoft when registering. FREE upgrade to Office 2000 from Microsoft. Conditions Apply.

$50 CASHBACK ON SELECTED MS OFFICE 97 PACKAGED PRODUCTS (EXCLUDING ACADEMIC)



Encyclopaedia Britannica 99

Britannica brings you the world from A-Z.

Contains entire text of the 32-volume Encyclopaedia Britannica plus more! Over 73,000 thought-provoking articles and brilliant interactive multimedia, 8,500 photos and illustrations and 30,000 free downloadable related internet links. (Windows 98/95/NT)

$163 WAS $299

Standard (text) version also available for **$85** RRP$99 (Windows 3.1/MAC)



For more information visit www.eb.com.au

Microsoft Visual Basic 6.0 Pro

Provides the tools you need to develop fast, state-of-the-art client/server and Internet solutions.

- Build high performance driven web applications
- Build middle-tier objects that other Microsoft applications can easily use
- Manage COM components to scale applications to hundreds of users
- PLUS MORE!

Ask about Microsoft Press titles including Visual Basic 6.0 Step by Step $62

Microsoft Visual Basic 6.0 Pro $845 (RRP$909)
Visual Basic 6.0 Enterprise Upgrade $1,187 (RRP$1,269)
Visual Basic 6.0 Enterprise $2,039 (RRP$2,159)

Crossgrade/ Upgrade $420 RRP $459



BUY SOFTWARE THE *SMART* WAY! 1300 658 600

Now M.Y.O.B. can put $20,000 straight on your bottom line. You can WIN $20,000 when you buy any M.Y.O.B. or Digi-Till product. Entries close 18/5/99

M.Y.O.B. 8.0

Accounting & Accounting with Payroll

All the power and ease of use that has made M.Y.O.B. Australia's favourite PLUS over 30 enhancements. Now with M.Y.O.B. OfficeLink you can harness the power of Microsoft Office. Also available with M.Y.O.B. Payroll 8.0 - Accounting PLUS a fully integrated payroll system. (Win/Mac)

RRP$399 ACCOUNTING **$339**

RRP$525 ACCOUNTING with PAYROLL **$479**



M.Y.O.B. FirstAccounts Value Pack

Over $500 worth of software!

This special promotional edition of M.Y.O.B. FirstAccounts is available for a limited time only... Not only does it contain M.Y.O.B. FirstAccounts it also includes the following Windows programs:

- **Vet Net Surfer**
- **Phonedisc**
- **WinDelete 97**
- **NetAccelerator**

$185 RRP $199



MAUS Stockmarket Plus

Manage, monitor and grow your investments!

Portfolio Management and Charting Software for Australian Investors. 100% Tax Deductible. Manage stocks, personal finances, property. Includes portfolio management, charting and reporting tools. Track any ASX listed company. Simply download stock prices for fast and accurate analysis. Finalist in the Channel 9 1998 Business Software Awards

$167 RRP $199



Norton CleanSweep

(Formerly from Quarterdeck)

The No.1 Choice for Hard Drive Clean-Up

- Safely removes unwanted programs and files, including internet files
- Automatically restores accidental deletions
- Includes scheduled clean-ups of unneeded files
- Year 2000 compliant

$57 RRP $69



Zip Starter Kit

Includes Zip parallel drive plus 4 100MB disks.

$299 RRP $349 EX $256

250MB Zip Drive COMING SOON!



Affordable personal storage to organise, move and backup your stuff... anywhere.

Use zip disks to: • Expand the storage of your computer quickly and easily - 100MB at a time. • Move your work easily to different locations and computers - Zip drive and disks are portable. • Backup quickly and easily • Store large scanned or downloaded files • Create a multimedia library • Archive old files and email • Collect stuff from on-line services without filling up your hard drive

zip

70 floppies in 1 Zip disk

FREE freight for all orders over $200*.

*Otherwise add $10 for delivery ($5 for Melbourne metro). Additional charges may apply for orders over 5kg. Same day delivery for Melbourne metro (order before 12.30pm - delivery before 6pm by approved couriers. For urgent delivery, point-to-point courier recommended - guaranteed 3 hour delivery to Melbourne metro). Government / corporate purchase orders and credit cards welcome (No Diners). Reseller prices available. Further discounts on quantity orders. Catalogue available on request. Only official Australian versions listed. City Software reserves the right to correct any errors or misprints. Offers / discounted pricing only applicable at time of ordering. Every effort made to ensure stock availability at time of publication. Prices, versions and availability subject to change without notice. E & O E.



Australian Owned Company... Why not buy Australian!

way to buy Software!

Adobe Publishing Collection

The complete package for the creation, assembly, and delivery of printed and electronic documents.

$1745 RRP $2495

Includes: Photoshop 5.0 - Leader in image & photographic manipulation. Illustrator 8.0 - Leading illustration & design package. Pagemaker 6.5 - Ultimate page layout package. Acrobat 3.0 (free upgrade to 4.0) - Smart way to publish online. Dimensions 3.0 - Add 3D graphics to your design. Streamline 4.0 - Convert images into line art instantly. (Win/Mac)



HP DeskJet 820Cxi Professional Series

High performance personal printing tailored for Windows users. Exceptional print quality and speed. Professional black output up to 6.5ppm. Colour output up to 4ppm. HP RealLife Imaging System delivers the most brilliant colour and sharpest blacks. An HP custom-engineered printing solution.

$285 WAS $599

Only available while stocks last!



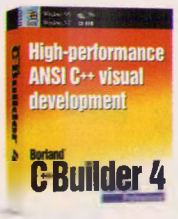
Borland C++ Builder 4 Professional

- Enhanced C++ Developer Productivity.
- Extensible object-oriented component framework.
- Advanced debugging power.
- Seamless Internet/Intranet wizards & components.
- Seamless integrated database support.
- Multi-tier distributed application services.
- Data visualisation support.
- C++ language/compiler features.
- PLUS MORE!

UPGRADE $187* RRP $399

Crossgrade $285* (RRP $459)

*SPECIAL PRICING DEALS - WHILE STOCKS LAST



Product Description	Inc Tax
ACT! 4.0 Upgrade	110
Adaptec CD Creator Deluxe 3.5	155
Adobe Illustrator 8.0 - SPECIAL!	695
Adobe Internet Pack	359
Adobe Pagemaker 6.5 & FREE Portfolio 3.0	1,049
Adobe PageMill 3.0	148
Adobe Photo Deluxe 3.0 Home Edition	79
Adobe Photoshop 5.0 & FREE Mask Pro 1.0	1,049
Adobe Type Manager 4.0 Deluxe NT	129
Allaire Homesite 4.0	189
AutoCAD LT 5.0 98 Upgrade	365
AutoCAD LT 5.0 98 Win95/NT	765
AutoSketch 6.0 for Windows	169
Backup Exec 3.0 Win 98	149
Borland Delphi 4.0 Pro Crossgrade	435
Borland Delphi 4.0 Pro Upgrade	420
Borland JBuilder 2.0 Pro Crossgrade	429
Borland JBuilder 2.0 Pro Upgrade	375
Check 2000 PC	69
Check 2000 PC Deluxe	89
Corel Draw 8.0 Upgrade	485
Corel Draw 8.0 (Upgrade from 4.0)	495
Corel Gallery Magic 1,000,000	169
Corel WordPerfect Suite 8.0 Upgrade	215
Crystal Reports Pro 7.0	629
Dragon Dictate Natural Speak Personal	179
Dragon Dictate Natural Speak Preferred	295
Dragon Point & Speak	99
Drive Image 2.0	99
DriveCopy 2.0	49
Eudora Pro 4.0	59
Filemaker Pro 4.1	365
Filemaker Pro 4.1 Upgrade	239
Floor Plan 3D Design Suite	95
IBM ViaVoice 98 Executive	236
IBM ViaVoice 98 Home Edition	98
iShare 3.0 - 3 Sessions	165
LapLink 95/98/NT	179
Linux Red Hat 5.2 (Box)	95
Lost & Found	110
Lotus Notes 4.6 Desktop .I	140
Lotus Organizer 5.0	119
Lotus SmartSuite Millenium Crossgrade	168
Macromedia Dreamteam for Win/Mac	965
MAUS Action Planner	169
MAUS Debt Collector	169
MAUS Job Description	169
MAUS MasterPlan Pro	169
MAUS Performance Review	169
McAfee 2000 Toolbox - SPECIAL!	58
McAfee Office 1.0	167
McAfee VirusScan Classic 4.0	75
McAfee VirusScan Deluxe 4.0	83
MS Access 97 Upgrade/Crossgrade	169
MS Age of Empires Expansion Pack	49
MS Combat Flight Simulator	85
MS Encarta Reference Suite 99	168
MS Excel 97 Upgrade/Crossgrade	165
MS Front Page 98	179
MS Graphics Studio Greetings 99	45
MS Money 99 - SPECIAL!	49
MS Office 97 Developer Upgrade	475
MS Office 97 Small Business Upgrade	420
MS Office 97 Std	775
MS Project 98	748
MS Project 98 Upgrade	295
MS Publisher 98	159
MS Publisher 98 Upgrade	125
MS SQL Server 7.0 & 10 Licences	3,160
MS SQL Server 7.0 & 5 Licences	2,205
MS SQL Server 7.0 Crossgrade/Upgrade 5 CAL	797
MS Visual C++ 6.0 Pro	860
MS Visual C++ 6.0 Pro Upgrade	430
MS Visual C++ 6.0 Std	169
MS Visual Studio Enterprise 6.0 Upgrade	1,715
MS Visual Studio Pro 6.0 Upgrade	859
MS Windows 98	275
MS Windows 98 Upgrade	155
MS Windows NT 4.0 Workstation / IE 4.0	499
MS Word 97 Upgrade/Crossgrade	135
MS Works Suite 99	169
MYOB Asset Manager	255
Net Nanny Internet Censor 3.1	45
Norton 2000	62
Norton AntiVirus 5.0 GOLD	90
Norton AntiVirus 5.0 NT Server	349
Norton CrashGuard 4.0	45
Norton PC Anywhere 32 8.0 H&R	199
Norton PC Anywhere 32 8.0 Host	125
Norton PC Anywhere 32 8.0 Remote	145
Norton pcTelecommute	119
Norton SystemWorks 1.1	168
OmniPage Pro 9.0 Crossgrade/Upgrade	199
Org Plus Windows	225
Paintshop Professional 5.0	135
Paradox 8.0 Win 95/NT	199
Partition Magic 4.0	99
Partition Magic 4.0 Upgrade	65
QuarkXPress 4.0 for Win/Mac - IN STOCK!	2,398
Quick Books 5.0 / Quick Payroll 4.0	379
Quick Books 5.0 Pro	337
Quick Books 5.0 Pro / Quick Payroll 4.0	469
Quick Books 5.0 Pro Upgrade	135
Quick Books 5.0 Standard	169
Quick Books 5.0 Standard Upgrade	89
Quicken 7.0 Deluxe	89
Quicken 7.0 for Business	135
Quicken 7.0 Windows	49
System Commander DELUXE	148
TalkWorks Pro - SPECIAL!	199
Textbridge Pro 98 New Version	169
Tracker Maximizer 5.0	225
TypeQuick 7.5x for Windows	66
VET Net Surfer with FREE Vet 2000 Test Kit	79
VET Premium CD with FREE Vet 2000 Test Kit	95
Visio 5.0 Standard	260
Visioneer Paperport Deluxe 5.3	160
Winfax Pro 9.0	140
Winfax Pro 9.0 Upgrade	75
WinZip 7.0 1 User	65

Call City Software to find out more about our volume purchasing programmes on products offered by Microsoft, Symantec, Adobe, etc...
BUY SOFTWARE THE SMART WAY!

Academic Versions (Student/Teacher ID Required)	Inc Tax
ED 3D Studio MAX 2.5 (teacher/institution)	589
ED 3D Studio MAX 2.5 / Character Studio 2.0	595
ED ABC Flowcharter 7.0	199
ED Adobe Illustrator 8.0	265
ED Adobe Internet Pack	315
ED Adobe Pagemaker 6.5 & FREE Portfolio	350
ED Adobe Photoshop 5.0 & FREE Mask Pro 1	469
ED Autocad LT 98 5.0	215
ED AutoCAD 14 ST	372
ED Borland C++ Builder 3.0 Pro	167
ED Borland Delphi 4.0 Standard	87
ED Borland Delphi 4.0 Pro	165
ED Corel Draw 8.0	189
ED Corel WordPerfect Suite 8.0	69
ED Filemaker Pro 4.1	289
ED Lotus SmartSuite Millenium	119
ED Macromedia Dreamweaver 2.0	185
ED Macromedia Fireworks	195
ED Microsoft Academic	$CALL
ED Norton AntiVirus 5.0 GOLD	55
ED Norton PC Anywhere 32 8.0 H&R	149
ED Norton SystemWorks 1.1	129
ED Winfax Pro 9.0	89

Hardware/Peripherals	Inc Tax	Ex Tax
Buz Drive (Iomega)	395	341
CD HP Rewritable Media 650MB 1 Pack	30	25
CD Kodak Gold Blank (inc case)	3	3
Disk 3.5" HD SONY (10 Pack)	7	6
HP DeskJet 695C Printer	265	225
HP ScanJet 3200C - ORDER NOW!	189	160
HP ScanJet 6200C & OmniPage Pro 9.0 C/pde/Upg	945	820
HP ScanJet 6250C	965	805
Jaz Disks 2GB SCSI 3 Pack Media	598	490
Logitech First Mouse PLUS	49	46
Logitech QuickCam Pro USB Win 95/98 & MAC	279	237
Logitech QuickCam VC Parallel Win 95/98	169	144
MS Sidewinder FreeStyle Pro 1.0	127	107
Netcomm Roadster Ultra II 56k SYD	247	209
Speakers - Multimedia 120W	29	29
US Robotics Sporster Flash Voice V.90	229	195
Zip Drive 100MB Disk 3 Pack	69	56
Zip Drive 100MB Disk 10 Pack - SPECIAL!	199	164
Zip Drive 100MB SCSI/Parallel External	255	219

Don't see it? Visit our home page for listings updated daily:
www.citysoftware.com.au [email:sales@citysoftware.com.au]

EXPRESS ORDER LINE **1300 658 600**

EXPRESS FAX ORDERS: 1300 658 010

Open: Monday to Friday: 8.30am - 6.00pm (except Wednesdays 9.00am - 6.00pm) Saturday: 10.00am - 4.00pm
Unit 103, Axxess Corporate Park, 45 Gilby Road, Mt. Waverley. Postal Address: PO Box 697, Mt. Waverley, VIC 3149

FREE FREIGHT* from Victoria's largest software stock holding!

CITY SOFTWARE ©

A.C.N. 054413251

AUSTRALIA'S No. 1 REFILL KITS

The highest quality inks and easy to use... Guaranteed!



THE FACTS

1) PRINTER WARRANTY - *Using our Refill Kits will not void your printers warranty.*

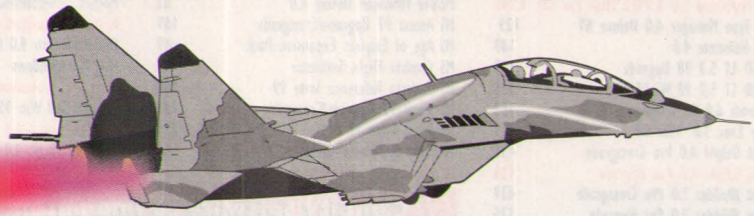
2) BETTER THAN ORIGINAL - *All of our inks are the best quality to be found anywhere world-wide and exceed the original manufacturers highest specifications.*

3) GET WHAT YOU PAY FOR - *Our product costs us more to produce than most, however, this ensures optimal printing performance and more consistent ink properties.*

4) DESIGNED WITH YOU IN MIND - *Our Refilling methods and equipment are always being simplified and improved with help from input and feedback from our customers.*

5) SUPER SERVICE - *Our mission at New Reality Resources is to provide levels of customer care second to none. We offer free delivery to your door and a 100% satisfaction guarantee on all our products.*

6) FREE ADVICE & SUPPORT - *We will help you achieve the most out of refilling and inkjet printing and even give you free independent advice when buying a new printer.*



BUY SMART
BUY DIRECT & $AVE



$AVE AT LEAST 80% AND BE PRINTING AGAIN IN NO TIME!*

*OUR EASY TO USE INKJET REFILL KITS REDUCE YOUR INKJET PRINTING COSTS BY AT LEAST 80%! WHY BUY ORIGINAL CARTRIDGES?

25% OFF CANON & EPSON COMPATIBLE CARTRIDGES

Yes...we also wholesale! Dealer enquiries welcome!

FREE AUSTRALIA WIDE DELIVERY! SAME DAY DISPATCH!!
COD * MONEY ORDER * CHEQUE * MASTER * VISA * BANKCARD * AMEX ACCEPTED

SUPERIOR PERFORMANCE

INKJET REFILLS

OUR INKS ALWAYS PRINT AS GOOD, IF NOT BETTER THAN THE ORIGINAL!

BLACK INKJET REFILL KITS FROM ONLY- $29.90

BLACK KITS INCLUDE SUPERIOR, DENSE & SHARP BLACK INK!!

DESCRIPTION	No. of Refills	Kit Code
CANON BJ-30	60	20-BKL
CANON BJC-70/80	60	21-BKL
CANON BC-01/02 BJ-10E/20/BJ-200/BJC-210/210SP/240/255	9	3-BKL
CANON BJ-300/ 330	7	4-BKL
CANON BJC-600/610/620	16	5-BKL
CANON BJC-4000/4100/4200/4550/5000/5500 BCI-21	45	19-BKL
CANON BJC-4000/4100/4200/4550/5000/5500 BC-20	9	18-BKL
HP Desk Jet 400/500/600C/660C/690C Series	6	8-BKL
HP Desk Jet 700/850C/855C/870C/1000C Series	6	29-BKL
HP Deskjet 300 Series & Olivetti JP's!	8	7-BKL
EPSON Stylus 400/800/800+/1000	8	1-BKL
EPSON Stylus Colour /PRO/XL	8	2-BKL
EPSON Stylus 820/colour II/IIs	12	23-BKL
EPSON Stylus Colour 200/300/400/440/500/600/640/740/800/850/1520	12	33-BKL
IBM/LEXMARK 4076/1000/1020/5000/7000 Series	6	35-BKL
CANON, EPSON, HP Fluorescent & Photo Realistic Kits!	12	Please Call!

BUY 3 GET 1 FREE

SATISFACTION 100% GUARANTEED

IMPROVED New INKS



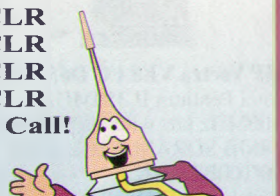
AUSTRALIAN MADE

COLOUR INKJET REFILL KITS FROM ONLY- $39.90

COLOUR KITS INCLUDE CYAN, YELLOW & MAGENTA INKS!!

DESCRIPTION	No. of Refills	Kit Code
CANON BJC-70/80	3x30	22-CLR
CANON BJC-210/210SP/240/255	3x12	25-CLR
CANON BJC-600/610/620	3x8	10-CLR
CANON BJC-4000/4100/4200/4550/5000/5500 BCI-21	3x30	17-CLR
HP Colour Desk Jet 300/400/500/600C/660C/690C etc. & Olivetti!	3x12	14-CLR
HP Desk Jet 700/850C/855C/870C/1000C Series	3x3	30-CLR
EPSON Stylus Colour /PRO/XL	3x4	16-CLR
EPSON Stylus 820/colour II/IIs	3x12	24-CLR
EPSON Stylus Colour 200/300/400/440/500/600/640/740/800/850/1520	3x12	34-CLR
IBM/LEXMARK 4076/1000/1020/5000/7000 Series	3x6	36-CLR
CANON, EPSON, HP Fluorescent & Photo Realistic Kits!	12/Colour	Please Call!
New!! Epson Photo 700 & Canon Photo 7000 Kits!		





REUSE RECYCLE REFILL

USING NEW REALITY RESOURCES INKJET REFILL KITS WILL NOT VOID YOUR PRINTER'S WARRANTY.

BEWARE OF INFERIOR COPIES, BUY THE "ORIGINAL" REFILL KIT!

AUSTRALIA WIDE FREECALL-

1800 680 605



NEW REALITY RESOURCES PTY. LTD.

Australia Wide FREECALL - 1800 680 605

QLD Phone - (07) 3245 2411 Fax - (07) 3245 2755

VIC Phone - (03) 9878 8288 Fax - (03) 9878 3933

Bayside Business Park
Shop 1 / 70 Redland Bay Rd
Capalaba Q 4157



FREE AUSTRALIA WIDE DELIVERY! SAME DAY DISPATCH!!

COD * MONEY ORDER * CHEQUE * MASTER * VISA * BANKCARD * AMEX ACCEPTED

Final Check,

Is your computer year 2000 ready?

CX offer you a total solution

$1,699

Limited stock



HP Brio 8531 PC
Minitower case,
Intel Pentium II processor 300MHz,
4.3 GB HDD,32MB RAM
32X CD-ROM and sound
Windows 98,
15" monitor
3 Year Warranty

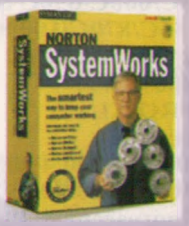
$2,649



HP Vectra VE8 PC D6572A
Intel Pentium II 350MHz,
100MHz bus with 440BX AGP set
64MB SDRAM,3.2GB HDD
10/100BT LAN
Windows NT Workstation 4.0 is pre-loaded; Windows 95 is provided on CD-ROM
3 Year Warranty,
Accessories: 15" Monitor (13.9"VI) can be purchased for an additional $462



Norton 2000 by Symantec
* Checks your applications for year 2000 compliance



Norton SystemWorks by Symantec
* Keep your computer running safely beyond year 2000

FREE BAG
FOR ANY NOTEBOOK PURCHASE
OFFER UNTIL END OF MARCH 99

Shopping in the web is easy

www.cx.com.au

CX HOME PC - INTEL PENTIUM II 300A MHZ CELERON W/CACHE $1,549

512K Pipeline Cache, 32M SDRAM, 4.3Gb EIDE Hard Drive,3.5" FDD, Maxtor Mystique 220 4Mb SGRAM PCI Video Card,15" TECO Monitor,56K Fax/Modem, 2x 16550 Uart Serial + 1 ECC/EPP Parallel,Mouse,104 Keyboard,16 bits Sound Card, 32x Speed CD-Rom,Mini Tower
OR Desktop Case, Microsoft Windows 95/98

CX BUSINESS PC - INTEL PENTIUM II 300A Mhz CELERON W/CACHE $1,499
CX BUSINESS PC - INTEL PENTIUM II 333 Mhz CELERON W/CACHE $1,559

Intel Pentium II EX Chipset, 32Mb SDRAM DIMM, 4.3Gb Ultra DMA Hard Drive, 32x Speed CD ROM, 1.44Mb Floppy Drive, Maxtor Mystique 220 4Mb SGRAM Video Card, 15" TECO Monitor, Mouse,104 Keyboard , 2x 16550 Uart Serial + 1 ECC/EPP Parallel, Mini Tower or Desktop Case, Microsoft Windows 95/98

CX PERFORMANCE PC - INTEL PENTIUM II 400Mhz MMX $2,780

Intel Pentium II BX Chipset M/B, 512K CACHE (Pentium II), 64Mb SDRAM, 8.3Gb Ultra DMA Hard Drive, 36x Speed CD ROM, 1.44Mb Floppy Drive, Matrox Millennium G200 AGP 8MB RAM Video Card, 17" TECO Mnoitor, Honeywell 104 Keyboard, 2x 16550 Uart Serial + 1 ECC/EPP Parallel, MS Mouse,ATX Medium Tower Case, Microsoft Windows 95/98

HEWLETT PACKARD
Registered Reseller

SYMANTEC.

CX

CX Computer Superstore
L/G, 84 PITT ST., SYDNEY 2000
Ph: 02 8224 0288
Fax: 02 9231 3677
www.cx.com.au

ISO 9002

All price include sale tax and subject to be changed without notice. Credit card or personal cheque payment subject to 2% extra charge.

This voucher is the property of CX Computer Superstore and must be returned upon request.

CX Computer Superstore

$10 SAVE

PLEASE PRESENT THIS VOUCHER UPON PAYMENT

Use of this voucher constitutes acceptance of the terms and conditions as shown as the following

Valid until 31st March 1999

This voucher is only applied in the premises of:
CX Computer Superstore, LG, 84 Pitt Street, Sydney 2000 Tel: 02 8224 0288
Use of this voucher constitutes acceptance of the terms and conditions as shown as:
1. With this voucher you can receive $10 off at the regular price of CX computer superstore's product and cannot be used in conjunction with any other special offer or discount.2. This voucher only applies with minimum purchase at $300 value or above. 3. One voucher will be accepted for a single transaction in any circumstance.4. This voucher is valid on or before the expired date that is stated on the voucher.5. This voucher is NOT transferable or redeemable for cash.6. CX computer superstore remains the final decision on any discrepancy.

URNE WAREHOUSE AND SAVE * CALL OUR HUGE MELBOURNE WA

CALL OUR MELBOURNE WAREHOUSE AND SAVE!

MICROSOFT

MS PROJECT 98
COMPLETE PROJECT CONTROL



FULL $729.95
UPGRADE $299.95

MS ACCESS 97 U/G	$ 149.95
MS BACK OFFICE SMALL BUS SVR	$2349.95
MS BACK OFFICE SMALL BUS SVR U/G	$1599.95
MS ENCARTA 99 STD	$ 49.95
MS ENCARTA 99 DLX	$ 109.95
MS ENCARTA 99 WORLD ATLAS	$ 69.95
MS ENCARTA 99 REF SUITE	$ 159.95
MS EXCEL 97 U/G	$ 169.95
MS FLIGHT SIMULATOR 98	$ 79.95
MS FRONTPAGE 98 U/G	$ 79.95
MS FRONTPAGE 98	$ 144.95
MS GRAPHICS STUDIO SUITE 98	$ 119.95
MS GREETINGS WORKSHOP 99	$ 39.95
MS HOME PUBLISHING	$ 74.95
MS OUTLOOK 98	$ 159.95
MS PICTURE IT 99	$ 79.95
MS PUBLISHER 98 U/G	$ 119.95
MS PUBLISHER 98 FULL	$ 149.95

MICROSOFT

MS OFFICE UPGRADES



MS Office 97 STD U/G $349.95*
MS Office 97 PRO U/G $439.95*
MS Office 98 U/G MAC $469.95*
MS Office 97 Value Pack $529.95*
ALL OFFICES INCLUDE A FREE UPGRADE TO OFFICE 2000!
ADD $20 FOR LOTUS SMART SUITE TO UPGRADE FROM!
* AFTER $50 CASH BACK FROM MICROSOFT.

MS VISUAL BASIC 6	$ 789.95
MS VISUAL BASIC 6 U/G	$ 439.95
MS VISUAL C++ 6	$ 789.95
MS VISUAL C++ 6 U/G	$ 439.95
MS VISUAL INTERDEV 6 U/G	$ 439.95
MS VISUAL STUDIO 6.0 U/G	$ 859.95
MS WIN 98 RESOURCE KIT	$ 129.95
MS WIN NT 4 SVR RES KIT	$ 229.95
MS WIN NT 4 SVR + 5 CALS U/G	$ 849.95
MS WIN NT 4 SVR +10CALS U/G	$ 729.95
MS WINDOWS 98 U/G	$ 139.95
MS WINDOWS 98 FULL	$ 279.95
MS WINDOWS NT 4 WKSTN	$ 449.95
MS WINDOWS NT 4 WKSTN U/G	$ 249.95
MS WINDOWS NT 4 SVR 5 CALS	$1299.95
MS WORD 97 U/G	$ 149.95
MS WORKS 4.5	$ 89.95
MS WORKS 99 SUITE	$ 159.95

ACCOUNTING

QUICKBOOKS 5



THE FASTEST EASIEST WAY TO MANAGE YOUR BUSINESS
JUST $199.95!
TAX DEDUCTABLE!

MAXIMIZER 5 FULL	$ 249.95
MAXIMIZER 5 U/G* CONDIT APPLY	$ 199.95
MYOB ASSET MANAGER	$ 269.95
MYOB DIGITILL	$ 899.95
MYOB FIRST ACCOUNTS	$ 169.95
MYOB POWER PAY	$ 469.95
MYOB PREMIER 3 USER	$ 899.95
MYOB 6	$ 339.95
MYOB 6 INC PAYROLL	$ 479.95
QUICKBOOKS 5 U/G	$ 149.95
QUICKBOOKS 5 FULL	$ 199.95
QUICKBOOKS 5 INC PAYROLL PRO	$ 399.95
QUICK PAYROLL PRO	$ 349.95
QUICKEN 7	$ 69.95
QUICKEN 7 DELUXE	$ 89.95
QUICKEN 7 FOR BUSINESS	$ 139.95
CLARIS FILEMAKER PRO 4.1	$ 349.95
CLARIS FILEMAKER PRO 4.1 U/G	$ 239.95

ACADEMIC

3DSTUDIO MAX
THE CHOICE OF PROFESSIONALS
TRUE RAYTRACING, SOFT SHADOWS, GLOW & PARTICLE EFFECTS, IK, & TOO MANY FEATURES TO MENTION



JUST $579.95!
ACADEMIC ID REQUIRED

ADOBE ACROBAT	$ 89.95
ADOBE ILLUSTRATOR 7	$ 269.95
ADOBE PAGEMAKER 6 PORTFOLIO	$ 399.95
ADOBE PREMIER 5	$ 549.95
ADOBE PHOTOSHOP 5	$ 499.95
ADOBE STREAMLINE	$ 139.95
CLARIS WORKS OFFICE	$ 109.95
COREL DRAW 8	$ 179.95
COREL WORDPERFECT SUITE 8	$ 79.95
IMSI LUMIER VIDEO STUDIO	$ 89.95
MACROMEDIA DESIGN IN MOTION SUITE	$ 269.95
MACROMEDIA FREEHAND 8	$ 269.95
MACROMEDIA FIREWORKS	$ 199.95
MACROMEDIA FONTOGRAPHER	$ 249.95
METACREATIONS 3D SUITE: INC BRYCE 3D, PAINTER 3D, RAY DREAM STUDIO & POSER	$ 699.95
VISIO TECH	$ 269.95
VISIO PRO	$ 269.95

FREE DELIVERY TO YOUR DOOR!*
ASK ABOUT YOUR FREE GIFT WITH EVERY ORDER!

UTILITIES

ADAPTEC EASY CD CREATOR	$ 149.95
BORLAND C++BUILDER 3 PRO C/G	$ 499.95
BORLAND DELPHI 4.0 PRO U/G	$ 499.95
BORLAND JBUILDER 2 PRO C/G	$ 449.95
CHECK 2000	$ 79.95
CHECK 2000 DLX	$ 99.95
CHECK IT DIAGNOSTICS SUITE	$ 169.95
CLEANSWEEP	$ 49.95
DISK COPY	$ 49.95
DRIVE IMAGE	$ 99.95
HURRICANE 98	$ 79.95
IBM VIA VOICE 98 EXEC	$ 249.95
KEYVIEW	$ 19.95
LINUX INFOMAGIC 6 CD SET	$ 39.95
LINUX OS PROFESSIONAL	$ 249.95
RAMGATE GOLD	$ 79.95
REAL HELP EXTRA STRENGTH	$ 79.95
REMOVE IT	$ 39.95

PARTITION MAGIC 4

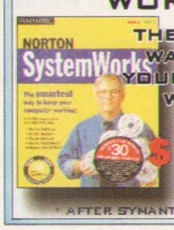


CREATE, RESIZE & MOVE HARD DRIVE PARTITIONS ON THE FLY! SAFELY RUN MULTIPLE OSs.
JUST $99.95!

COMMUNICATIONS

ARTISOFT I-SHARE V3 3 USER	$149.95
ARTISOFT I-SHARE 32 V3 10 USER	$249.95
ARTISOFT CO-SESSION V8	$109.95
CYBERMEDIA OIL CHANGE	$ 59.95
HOT BANNERS	$ 29.95
NET ACCELERATOR (12X)	$ 49.95
NET GRAPHICS STUDIO 2	$169.95
MODEM WIZARD	$ 19.95
SPEED SURFER	$ 19.95
PROCOMM CONNECTIONS	$129.95
WEB BUSINESS BUILDER	$149.95
VIDEO LINK MAIL	$ 69.95
3COM MEGAHERTZ PC CARD	$399.95
BANKSIA MY MODEM 56K	$189.95
BANKSIA WAVE SP 56K	$229.95
DLINK 56K EXTERNAL	$149.95
HAYES ACCURA56K EXT	$269.95
HIGH SPEED 16550 I/O CARD	$ 34.95
MICROPLEX 15 HOURS CARD	$ 24.95
NETCOMM ROADSTER 56K	$249.95
NETCOMM ROADSTER 56K USB	$279.95
OZEMAIL STARTER KIT	$ 9.95
USR COURIER 56K	$489.95
USR MESSAGE PRO 56K	$299.95
XIRCOM 56K PCMCIA	$299.95

NORTON SYSTEM WORKS



THE SMARTEST WAY TO KEEP YOUR COMPUTER WORKING.
JUST $139.95!*
* AFTER SYMANTEC CASH BACK

US ROBOTICS 56K SPORTSTER



SURF THE INTERNET AT MAXIMUM SPEED
JUST $229.95

UTILITIES

UNDO IT	$ 69.95
UPGRADE AID 95/98	$ 39.95
VET ANTI-VIRUS NET SURFER 98	$ 59.95
VET ANTI-VIRUS PREMIUM	$ 89.95
WINDELETE	$ 89.95
WINZIP 32 7	$ 69.95
XEROX PAGIS PRO 2	$ 199.95
XEROX TEXTBRIDGE PRO 98	$ 179.95
ZIP MAGIC 98	$ 69.95

DRAGON DICTATE



SPEAK TO YOUR COMPUTER! STANDARD $179.95
PREFERRED $299.95

VIDEO CARDS

CREATIVE BANSHEE 16MB AGP/PCI	$ 279.95
CREATIVE RIVA TNT 16MB AGP	$ 379.95
DIAMOND MONSTER FUSION 16MB	$ 309.95
LIGHTSPEED 3300 16MB AGP	$ 289.95
OBSIDIAN 912 VOODOO2	$ 279.95
VELOCITY 4400 16MB AGP/PCI	$ 349.95

IOMEGA

BUZ	$ 369.95
JAZ CARRY CASE	$ 69.95
JAZ 2GB CART	$ 199.95
JAZ SCSI/ISA CARD	$ 189.95
JAZ PCMCIA/SCSI CARD	$ 249.95
JAZ PCI ZOOM	$ 229.95
JAZ DRIVE 1GB	$ 599.95
JAZ DRIVE 2GB	$ 799.95
JAZ TRAVELLER	$ 99.95
ZIP CADDY	$ 29.95
ZIP CARRY CASE	$ 69.95
ZIP CART X 10	$ 189.95
ZIP CART X 1	$ 19.95
ZIP PCMCIA/SCSI	$ 199.95
ZIP DISK LABELS X 20	$ 5.95
ZIP DRIVE PARALLEL	$ 249.95
ZIP DRIVE SCSI	$ 249.95
ZIP DRIVE PLUS USB	$ 299.95

SYMANTEC

	WINDOWS NT / WINDOWS 95/98 RETAIL	WINDOWS 3.X / DOS ACADEMIC
SYMANTEC ACT 4.0	$149.95	$ 89.95
NORTON 2000	$ 69.95	$ 49.95
NORTON ANTI-VIRUS 5.0	$ 89.95	$ 59.95
NORTON CRASHGUARD 4.0 NEW!	$ 49.95	$ 39.95
NORTON VISUAL CAFE! STD	$139.95	$119.95
NORTON VISUAL CAFE! PRO	$399.95	$299.95
NORTON MOBILE ESSENTIALS	$119.95	$ 79.95
NORTON SYSTEM WORKS	$179.95	$129.95
NORTON UTILITIES GOLD 2.0	$109.95	$ 79.95
NORTON PC ANYWHERE 32 8.0	$199.95	$149.95
NORTON PC TELECOMMUTE	$129.95	$ 99.95
NORTON TALKWORKS PRO 2.0	$219.95	$159.95
NORTON WINFAX PRO 9.0	$129.95	$ 89.95

EVERYTHING FOR YOUR COMPUTING NEEDS

GRAPHICS

ADOBE ILLUSTRATOR 8*	$ 599.95
ADOBE PAGEMAKER 6.5 U/G	$ 269.95
ADOBE PHOTOSHOP 5	$1099.95
ADOBE PREMIER 5	$ 999.95
COREL DRAW 8 U/G	$ 449.95
KAIS POWER TOOLS 5	$ 199.95
PAINTSHOP PRO 5	$ 139.95
VISIO INTELLICAD 5	$ 499.95
VISIO PRO 5	$ 499.95
VISIO TECHNICAL 5	$ 499.95
QUARK EXPRESS 4	$2399.95

Adobe Publishing Collection



ADOBE PHOTOSHOP, ADOBE ILLUSTRATOR, ADOBE PAGEMAKER, ADOBE DIMENSIONS, ADOBE STREAMLINE, & ADOBE ACROBAT!
$1699.95!
Total value over $2500.00

Mail Order Hotline
03-9663-9111
FREE DELIVERY TO YOUR DOOR!

eftpos
We accept most major credit cards.

MAIL ORDER
Software
AUSTRALIA PTY LTD

398 Elizabeth Street Melbourne Victoria 3000
Ph: 03-9663-9111 Fx: 03-9663-9119

* Free delivery for all items over $200. For orders under $200 freight charges of $5 for Melbourne Metro or $10 anywhere in Australia apply. Same day orders must be placed before 11:00AM. (Melbourne Metro only). Most government and corporate purchase orders accepted. Dealer enquiries welcome. No rainchecks and prices are subject to change without notice. E & O.E.

OUSE AND SAVE * CALL OUR HUGE MELBOURNE WAREHOUSE AND SAVE * CALL OUR HUGE MELBOURNE WAREH

CALL OUR HUGE MELBOURNE WAREH * OURNE WAREHOUSE AND SAVE

Dragon NaturallySpeaking™

Editor's Choice apcmag

PC User PC IT 97 Melbourne WINNER Best Personal Computing Product

Now You're Talking!

TRUE CONTINUOUS SPEECH. SPEAK TO YOUR COMPUTER NATURALLY, YOUR WORDS SWIFTLY APPEARING ON YOUR COMPUTER SCREEN!

Dragon NaturallySpeaking Winner of BYTE Magazine's *"Best of COMDEX/SPRING '97"* and Best Applications and Utilities Software

Speaking is the Natural Alternative

It's simple. Just speak to your computer naturally - without pausing between words - and watch as sentences appear on your screen. Dictate entire paragraphs at a time. Compose e-mail messages, create reports, draft letters, and edit proposals just by speaking. You'll find Dragon NaturallySpeaking can be faster and more natural than typing.



Suited for Everyone

Dragon NaturallySpeaking is the natural way to input text.

Business Executives and all their staff quickly create e-mail and confidential correspondence from start to finish, without relying on others.

Lawyers reduce turnaround time and support costs by eliminating the "dictate-transcribe-revise-approve" cycle.





Doctors instantly create accurate and legible records without transcription costs, errors and delays.

Designers keep their eyes and concentration on their work as they enter commands without lifting their hands off the system mouse.

Writers, Programmers, and other keyboard-intensive users reduce the risk of injury from repetitive keyboard and mouse actions.

Highly Accurate

Dragon NaturallySpeaking is the most accurate general purpose dictation product ever produced by Dragon Systems. With regular use, 95% accuracy can be achieved. Dialects, accents and individual pronunciations are learned quickly and automatically.

Large Vocabulary

All of the words most people use everyday are immediately recognized. The 30,000 word active vocabulary contains words and names that cover a wide range of subjects. Less common words can be quickly retrieved from the 200,000+ word back-up dictionary. New words can be added simply by saying them and spelling them once or by using the Vocabulary Builder tool.

System Requirements

Minimum 133MHz Pentium Processor IBM Compatible PC with 32MB RAM (Faster with MMX)

DragonDictate Voice Systems — Australia Wide Sales and Support

Email: sales@dragondictate.com.au http://www.dragondictate.com.au

L3/456 St Kilda Road	L3/379 Pitt Street	L12/141 Queen Street	L4/45 King William Street
Melbourne Vic. 3004	Sydney NSW 2000	Brisbane Qld. 4000	Adelaide SA 5000
Tel: 03 9866 5733	**Tel: 02 9264 4055**	**Tel: 07 3236 5944**	**Tel: 08 8212 2662**
Fax: 03 9820 1872	Fax: 02 9264 4115	Fax: 07 3236 5988	Fax: 08 8212 2882

NASA TECHNOLOGY

NaSa Technology Pty Ltd

Unit 7, 119 - 133 McEvoy St
Alexandria, NSW 2015
http://www.nasa.com.au
email: sales@nasa.com.au

The Media and Storage Specialists







Kodak 4801 **$449.00**
8 Speed Read, 4 Speed Write IDE Kit including Software and cables, 2Mb Buffer

Ricoh 7040AW NEW **$CALL**
20 Speed Read, 4 Speed Write 4 Speed ReWrite, IDE, 2Mb Buffer

Ricoh 7040SW NEW **$CALL**
20 Speed Read, 4 Speed Write 4 Speed ReWrite, 2 Mb Buffer, SCSI

Smart & Friendly SpeedWriter
Internal **$759.00** External **$999.00**
12 Speed 4 Speed Write, SCSI Kit including Software and SCSI card. External kit includes *Toast* software for Macintosh

CD Recorders & Re Writers

Backing up, Software publishing, Product demonstrations, even your own musical composition. Making your own CD's has never been so economical and easy! Ranging from budget IDE models to High End, High Speed SCSI Writers, there is a solution to suit every situation *.

* It is illegal to copy original works without the consent of the author

CD-R Media

First in Australia to sell 80 min. CD-R

Manufacturer	Colour / Dye	Manufacturer	20 +	50 +	100 +
Laser	Glossy Silver/ Blue, with logo	Jewel Case	$ 2.20	$ 2.10	$ 1.98
Laser	700 Mb / 80 minutes	Jewel Case	$10.00	$ 8.00	$ 5.99
CMC	Glossy Silver / Blue, without logo	Spindle (100pcs)	-	-	$ 1.95
Taiyoyuden(Sony)	Matt Gold / Green, without logo	Spindle (50pcs)	-	$ 2.40	$ 2.30
TDK	Matt Inkjet Printable, Platinum/Blue without logo	Spindle (50pcs)	-	$ 2.62	$ 2.51
TDK	Platinum / Blue with TDK logo	Jewel Case	$ 2.99	$ 2.62	$ 2.51
TDK	700 Mb / 80 minutes	Jewel Case	$18.00	$17.00	$15.50
TDK	TDK CD-RXG74, Special Audio Machine	Jewel Case	$ 8.00	$ 7.38	$ 6.99
Kodak	Gold / Gold with logo	Jewel Case	$ 2.99	$ 2.62	$ 2.51
Kodak	Gold / Gold without logo	Jewel Case	$ 2.99	$ 2.62	$ 2.51
Kodak	Audio only, Special Audio Machine	Jewel Case	$ 6.99	$ 6.30	$ 5.99
Verbatim	Platinum / Blue with Verbatim logo	Jewel Case	$ 3.40	$ 2.85	$ 2.73
Mitsubishi	Platinum / blue without Mitsubishi logo	Jewel Case	-	$ 2.62	$ 2.51
Ricoh	Gold / Gold, with logo	Jewel Case	$ 2.99	$ 2.62	$ 2.51
Mitsui	Gold / Gold, without logo	Jewel Case	$ 3.40	$ 2.99	$ 2.80
Mitsui	NSP, White Printable Fargo/Blue, without Logo	Spindle (100pcs)	-	-	$ 3.69
Precisa	CD RW Rewritable 74 minutes / 650 Mb	Jewel Case	$21.00	$18.50	$17.50
	CD Jewel Case Single (200 in a carton)	Jewel Case	$ 0.60	$ 0.45	$ 0.43
	CD Jewel Case Double (200 in a carton)	Jewel Case	$ 0.70	$ 0.52	$ 0.48



All types of storage media at the best possible prices



Laser Removable Hard Drive Kits

Move your Hard Drive, Transfer Info, Protect Data



Laser Removable Hard drive kit	**$25.00**
Laser Removable Hard Drive Kit with Fan	**$29.00**
Laser Removable Hard Drive Kit with Aluminium Case and Fan for high speed drives >5400 rpm	**$59.00**
Laser Hot Swap Removable Hard Drive Kit with Fan - suitable for IDE MO, LS120, ZIP and Hard Disk Drives	**$110.00**
Drawer for above Kits also available	**$19.00**

Pressit Labelling Kits

For Professional Quality CD Labels • Jewel Cases • Everything You need in the Box

$79.95 only

Design It! Label It! Pressit!



Call NaSa on **02-9699-8888**
or fax us on **02-9699-5188** or **02-9699-5288**
Dealer Enquiries Welcome !

Buy DIRECT from a Wholesaler

Forté

SINCE 1987

CALL OUR ORDERLINE DIRECT ON
1300 - 368 - 922
OR SHOPPING ON THE INTERNET
www.fortecomputers.com.au

SYSTEMS

Forte Workstation PII 333A Celeron	$1299
Forte Workstation PII 366 Celeron	$1350
Forté Workstation PII 400 Celeron	$1425

***Incl.:Socket 370 M/B, 32M SDRAM, 4.3G, 15" LG, 4M AGP, 36x CD, S.Card, Spkr, KB, Mouse, Win 98, 2 Year on-site*)**
**) Sydney Metro & for system only.*

Forte Professional Series PII 350	$1950
Forte Professional Series PII 400	$2190
Forté Professional Series PIII 450	$2600
Forte Professional Series PIII 500	$3000

Incl.: Giga BX M/B, 64M PC 100, 6.4G, 8M AGP, 15" LG 55i, 36x CD, S.Blaster PCI32, 300W Spkr, 56k Modem, Win 98, Lotus Suite, 2 Year on-site

Forte Luxury Series PII 350	$2700
Forté Luxury Series PII 400	$2950
Forte Luxury Series PIII 450	$3395
Forte Luxury Series PIII 500	$3835

Incl.: Giga BX M/B, 128M PC100, 8.4G, 16M Viper, 17" Acer, 40x CD, SB PCI 64, 700W Sub Woofer, 56k V90 Modem, Win 98, 2 Year on-site

We also stock ACER, IBM, HP, COMPAQ, etc. Call or Visit our Web Site for details

SERVERS

Forte Server PII 350/100	$3200
Forté Server PII 400/100	$3450
Forté Server PIII 450/100	$3850
Forté Server PIII 500/100	$4300

Incl.: Giga BXS SCSI U/W M/B, 128M PC 100, 4.5G U/W SCSI 4M S3 AGP, 14" Mon, 36x CD, 1.44, Keyboard, 56K int modem, mouse, Windows NT Server+5 CALs, 10/100 NIC PCI.

We carry other Brand Name Servers: ACER, IBM, HP, COMPAQ, etc. Call or Visit our Web Site for details

PORTABLES

Toshiba Satellite 2520CDT	$3350
Toshiba Satellite 4030CDT	$3950
Toshiba Satellite 4060XCDT	$5200
Toshiba Satellite 4080XCDT	$6330
Toshiba Portege 3020CT	$3950
Toshiba Portege 7010CT	$5800
Toshiba Portege 7020CT	$7200
Tcshiba Liberetto 100CT	$2600
Tcshiba Liberetto 110CT	$3600
Tcshiba Tecra 8000 333/64/6G/56 95/8	$6450
Tcshiba Tecra 8000 333/64/6G/56 NT	$6650
Toshiba Tecra 8000 366/64/10G/56 95/8	$8300
Toshiba Tecra 8000 366/64/10G/56 NT	$8500
Compaq Presario 1260	$3750
Compaq Presario 1660	$5550
IBM ThinkPad I-series P300 32 4.3 12.1	$3260
IBM TPad390 PII 233 32/ 3.2/12.1 W98	$3850
IBM TPad380Z PII 300 32/4/13.3 W98	$4800
Extensa 501DX P266 32/2.1 56K DSTN	$2870
Extensa 502T P266, 32/4.0 56K TFT	$3420
Extensa 503T P300, 32/4.0 56K TFT	$3800
Extensa 710T, PII 233 32/3.2 56K TFT	$3700
Extensa 711TE, PII 266 64/4 56K TFT	$4900

We also carry HP, COMPAQ, NEC, etc. Call or Visit our Web Site for details

Built your own system with components below:

MOTHERBOARDS

Gigabyte GA-5AA (100) AT/5AX - ATX	$160
Gigabyte GA-6LAT S370 AT	$180
Gigabyte GA-6BXC (with S370converter)	$190
Gigabyte GA-686BXS with U/W SCSI	$450
Gigabyte GA-686BXDS Dual U/W SCSI	$570
Gigabyte GA-686BXU. with U2W SCSI	$680
ABIT BH6 - Soft Menu. Award Winning	$210
ABIT BX6 - BX Chipset	$270
Aopen AX6BC (Lan wake up)	$200
Aopen AX6B+ U/W SCSI 7880	$475
Aopen AX59 Pro PC100	$175
ASUS P5A-B AT ALI Super 7	$175
ASUS MEL-M Socket 370	$220
ASUS P2B PB512K BX, Intel 440 BX	$280
ASUS P2BS, Intel 440BX SCSI II	$620
ASUS P2BD, Dual intel 440BX	$550
A-Plus AP-921BVA/S, audio, S370	$130

Call or Visit our Web Site for other brand.

PROCESSORS

Intel Pentium II-300A 128K (Slot 1)	$200
Intel Pentium II-333A 128K (Slot 1)	$170
Intel Pentium II-366A 128K (Slot 1)	$235
Intel Pentium II-400A 128K (Slot 1)	$330
Intel Pentium II-300A 128K (Slot 370)	$150
Intel Pentium II-333A 128K (Slot 370)	$170
Intel Pentium II-366A 128K (Slot 370)	$210
Intel Pentium II-400A 128K (Slot 370)	$300
Intel Pentium II-350	$370
Intel Pentium II-400	$600
Intel Pentium II-450	$870
Intel Pentium III-450	$999
Intel Pentium III-500	$1400
Cynx M2-233Mhz	$100
Cynx M2-300Mhz	$105
Cynx M2-333Mhz	$145
AMD K6-2 300 OEM	$150
AMD K6-2 350 OEM	$220
AMD K6-2 366 OEM	$280
AMD K6 2 400 OEM	$330
AMD K6 3 450 OEM	Call
CPU Fan for Pentium (Soc. 7)	$15

MEMORY

8MB EDO SIMM 72 pin	$35
16MB EDO SIMM 72 pin	$75
32MB EDO SIMM 72 pin	$140
32MB SDRAM	$80
64MB SDRAM PC100	$175
128MB SDRAM PC100	$350

MEMORY for Brand Name Notebook & Desktop also available, please call 1300 368 922

HARD DISKS - EIDE

3.2Gb Seagate/Fujitsu Ultra ATA	$240
4.3Gb Seagate/Fujitsu Ultra ATA	$260
6.4Gb Seagate/Fujitsu Ultra ATA	$290
8.6Gb Seagate/Fujitsu Ultra ATA	$330
10.2Gb Seagate/Fujitsu Ultra ATA	$410
6.4Gb Quantum FB EX	$300
10.2Gb Quantum FB EX	$410
12.7Gb Quantum FB EX	$460
8.4Gb IBM Deskstar	$370
10.1Gb IBM Deskstar	$390
13.5Gb IBM Deskstar	$485
16.8Gb IBM Deskstar	$670
20.3Gb IBM Deskstar 2Mb	$840
25.0Gb IBM Deskstar 2Mb	$1150
10.1Gb IBM Deskstar 7200rpm	$540
14.0Gb IBM Deskstar 7200rpm	$700
18.0Gb IBM Deskstar 2Mb 7200rpm	$930
22.0Gb IBM Deskstar 2Mb 7200rpm	$1130

HARD DISKS - SCSI

4.5G IBM 9ES SCSI UW/U2W	$525
9.1G IBM 9ES SCSI UW/U2W	$865
9.1G IBM 18ES 7200rpm UW/U2W	$1395
18.3G IBM 18ES 7200rpm UW/U2W	$2180
9.1G IBM 9ZX 10000rpm UW/U2W	$1320
9.1G IBM 9LZX 10020rpm UW/U2W	$1390
18.2G IBM 18ZX 10020rpm UW/U2W	$2380
4.5G Seagate Medalist Pro UW/U2W	$490
4.5G Seagate Barracuda 4XL UW/U2W	$890
4.5G Seagate Barracuda 9LP UW/U2W	$820
9G Seagate Barracuda 9LP UW/U2W/f	$950
4.5G Seagate Cheetah LP UW/s/diff	$1100
9.1G Seagate Cheetah HH UW/s/diff	$1400
4.5G Seagate Cheetah 9LP 6m UW/U2W	$1180
9G Seagate Cheetah 9LP 6m UW/U2W/f	$1450
18G Seagate Cheetah HH 6m UW/U2W/f	$2350
4.5G Quantum VikingII SE UW/U2W	$495
9.1G Quantum VikingII SE UW/U2W	$780
9.1G Quantum AtlasIII 8m UW/U2W	$830
18.2G Quantum AtlasIII 8m UW/U2W	$1550
Removable Mobile Rack SCSI	$50
Removable Mobile Rack IDE	$30
Hard disk mounting kit	$5

FDD & STORAGE DEVICES

1.44MB, 3.5" Floppy drive	$30
LS120 Superdisk internal	$185
LS120 Superdisk media	$22
Iomega Zip Drive Internal OEM	$165
Iomega Zip Drive External Parallel/SCSI	$238
Iomega Zip Drive Int. SCSI+Card+1cart	$235
Iomega Zip Drive Ext. USB + 1cart	$290
Iomega 100M PC ZIP Disk	$23
Iomega Jaz SCSI 2G Ext + Jaz Traveller	$690
Iomega 2G Jaz Media (3 PACKS)	$570
Iomega Zip Card - SCSI adaptor	$200
Syquest SPARQ 1G EIDE/Parallel	$470
Syquest SPARQ 1G Media (3 PACKS)	$300

CASING

Deluxe Mini Tower AT	$60
Deluxe Midi Tower ATX	$80
Deluxe Full Tower ATX	$140
Deluxe Desktop ATX	$145
Macase Midi Tower ATX	$170
Macase Desktop ATX	$165
Macase Full Tower ATX	$260
Macase Server Tower ATX	$1400
YY Full Tower ATX	$190
AOpen Midi Tower ATX	$130
AOpen Full Tower ATX	$230

VIDEO & GAMES CARDS

1M Eagle S3 64V+ PCI	$45
4M Eagle S3 VIRGE 3D PCI	$60
4M TRIDENT 9750 AGP	$60
8M i740 Eagle AGP	$80
4M Diamond Speedstar A50 AGP oem	$90
16M Diamond Viper V550 AGP oem	$250
16M Diamond Viper V550 AGP/PCI Retail	$300
16M Asustek AGP-V3400TNT	$270
16M Asustek AGP-V3400TNT/TV	$340
8M Matrox Mystique G200 AGP TV oem	$230
8M Matrox Mystique G200 AGP/PCI TV	$295
8M Matrox Millenium G200 AGP oem	$230
8M Matrox Millenium G200 AGP Retail	$275
16M Diamond Monster Fusion AGP oem	$275
16M Diamond Monster Fusion AGP/PCI	$300
16M Creative 3D Banshee AGP/PCI Ret	$260
12M Eagle Voodoo II PCI Game Card	$250
12M Dynalink Voodoo II PCI Game Card	$250

MONITORS

LG 55i 15"	$299
LG 77i 17"	$590
Daewoo 14" CMC-431X	$260
Daewoo 15" 518B	$345
ACER 54E 15"	$300
ACER 57C 15" Mini	$385
ACER 77C 17"	$540
ACER 79G 17" (Diamon	$920
SONY 100ES 15"	$530
SONY 200ES 17" .25 dp (Good Value)	$870
SONY 200GS 17"	$1250
SONY 200PS 17"	$1600
SONY 400PS 19"	$1900
SONY 500PS 21"	$2900
NEC MultiSync V500 15"	$370
NEC MultiSync MNE500 15" .25dp	$450
ViewMaster M1738NF 17" .25 (16x12)	$590
Mitsubishi 15" Diamond View 1554	$310
Mitsubishi 15" Diamond View 1570	$345
Mitsubishi 17" Diamond View 1772e	$585
Mitsubishi 17" Diamond Plus 72	$990
Mitsubishi 19" Diamond View 1995	$1150
Mitsubishi 21" Diamond Pro 91TXM	$2810
VIEWSONIC 15" E655	$360
VIEWSONIC 15" P655	$480
VIEWSONIC 17" E771	$670
VIEWSONIC 17" G771	$790
VIEWSONIC 17" P775	$1050
VIEWSONIC 19" G790 (Value for $$$)	$1330
VIEWSONIC 21" P810 (Value for $$$)	$2300

*) all sizes specified are CRT size, not viewable
We also carry Brand Name Monitor:
Call or Visit our Web Site for details

CD-ROM, DVD, CD-R, CD-RW:

36X IDE OEM	$80
40X AOPEN IDE	$120
48X AOPEN IDE	$140
50X ASUSTEK IDE	$150
40X Creative IDE (remote enable)	$120
40X Pioneer IDE	$120
36X Pioneer SCSI (Trayless)	$240
32X Teac SCSI	$200
24X Sony SCSI	$220
Creative 5X PC-DVD Encore kit	$550
Sony 3rd Gen. DVD + Decoder Card	$550
CDR (4Wx8R) Panasonic kit (SCSI + SW)	$560
CDR (4WX8R) Panasonic IDE	$475
CDR (4Wx24R) Teac (Value for $$$)	$540
CDR (4Wx24R) Teac kit (SCSI + SW)	$620
CDR (6Wx24R) Teac kit (SCSI + SW)	$790
Kodak CDR-4801 (4x8) ide kit	$500
CDR SONY (4Wx8R) SCSI	$570
CDR SONY (4Wx8R) kit (S/W)	$630
CDR Plextor 4218I 4/12 SCSI Bare drive	$720
CDR Plextor 8208I 8/20 SCSI Bare drive	$1050
CD-RW Ricoh MP6200AR kit	$590
CD-RW Ricoh MP6200SR SCSI	$685
CD-RW Ricoh MP7400A (4x4x20) Kit	$800
CD-RW Yamaha 2216 (2x2x16) IDE oem	$590
CD-RW Yamaha 4416 (4x4x16) SCSI	$750
CD-RW Yamaha 4416 (4x4x16) IDE kit	$860
CD-RW Yamaha 4416 (4x4x16) Ext. oem	$980
CD-RW SONY CRX-100EB (4x2x24) IDE	$418
CD-RW SONY CRX-100EB Kit	$477
CD-RW HP SureStore 7200i	$620
CD-RW HP SureStore 7200e	$830
CD-RW HP SureStore 8100i (20x4x2)	$780
EXTERNAL CASING SCSI	$150
Blank CD-R Kodak Gold	$3
Blank CD-R Mitsui Gold	$3
Blank CD-RW Ritek	$23
Blank CD-RW HP	$30
Blank CD-RW Teac	$55

SOUND CARDS

Eagle 16 bit ESS 1868	$30
Sound Blaster Vibra 16 oem	$60
Sound Blaster AWE64 oem	$90
Sound Blaster PCI32 Ensonic oem	$65
Sound Blaster PCI64 oem	$85
Sound Blaster PCI128 oem	$145
Sound Blaster AWE64 Gold	$300
Sound Blaster LIVE oem	$190
Sound Blaster LIVE Value	$280
Sound Blaster LIVE 5.1 Voice Box	$450
Diamond Sonic Impact S90 OEM	$75
Diamond Sonic Impact S90 Retail	$110
Diamond Monster Sound MX300	$190

SPEAKERS:

80W PMPO Stereo Power	$20
300W PMPO Stereo	$40
480W PMPO Stereo	$50
700W PMPO Sub-Woofer	$120
Creative Cambridge PC Work	$180
Creative Cambridge Work 4x Surround	$270

KEYBOARDS

Clipper Pro Heavy Duty PS/2	$20
Accufeel - Acer PS/2	$25
Honeywell Spacemate PS/2	$50
Microsoft Ergonomic Elite PS/2	$70
Logitech Cordless Desktop	$230
Logitech Internet Keyboard oem	$68

MICE, TRACKBALLS, JOYSTICKS:

Artec 400dpi serial or PS/2	$10
Logitech 2 button serial or PS/2 oem	$25
Logitech 2 button first mouse USB	$50
Logitech 3 button serial or PS/2 oem	$30
Logitech 3 button Mouseman oem	$40
Logitech 4 button MouseMan + oem	$95
Microsoft Intellimouse oem	$60
Logitech Trackman Marble	$120
Logitech Trackman Marble+	$130
Logitech WingMan Extreme Digital	$85
Logitech WingMan Force	$230
Logitech Wingman Formula Wheel	$190
Logitech Wingman Formula Force Wheel	$330
Microsoft Sidewinder Precision Pro	$115
Microsoft Sidewinder Force Feedback	$270
Microsoft Force Feedback Pro Wheel	$295

SOFTWARE

MS Windows '95 on CD OEM	$165
MS Windows '98 on CD OEM	$165
MS Windows '98 Upgrade	$140
MS Windows '98 Full version	$260
Microsoft NT [illegible] oem	$280
Microsoft NT [illegible]	$480
Microsoft [illegible]	$1380
Microsoft NT [illegible]	$1180
Microsoft OFFICE [illegible]	$395
Microsoft OFFICE [illegible]	$750
Microsoft OFFICE [illegible]	$360
Microsoft OFFICE [illegible]	$480
Microsoft OFFICE [illegible]	$850
Microsoft OFFICE Value [illegible]	$599
Microsoft Publisher 98	$155
M.Y.O.B. First Accounts	$165
M.Y.O.B. Asset Manager	$250
M.Y.O.B. Accounting 8.0	$350
M.Y.O.B. Accounting with Payroll	$470
M.Y.O.B. Premier Accounting	$850
M.Y.O.B. Power Pay	$420
Norton Utilities Gold	$125
Norton Antivirus Gold	$82
PC Anywhere Ver. 8.0	$195
WinFax Pro Ver. 8.0	$132

PRINTERS:

Canon BJC-50 Portable	$610
Canon BJC-80 Portable	$360
Canon BJC-255 Bubble-Jet	$145
Canon BJC-4310	$260
Scanner head for 4310	$140
Canon BJC-4650 (A3)	$430
Canon BJC-5000 (A3)	$510
Canon BJC-5500 A2	$1250
Canon LBP660 Laser	$530
EPSON STYLUS COLOR 440	$230
EPSON STYLUS COLOR 640	$295
EPSON STYLUS COLOR 740	$480
EPSON STYLUS COLOR 850	$660
EPSON STYLUS PHOTO 700	$410
EPSON STYLUS PHOTO EX (A3)	$760
HP DESKJET 695C	$250
HP DESKJET 710C	$330
HP DESKJET 880Cxi	$565
HP DESKJET 895Cxi	$795
HP DESKJET 1120C (A3)	$880
HP OfficeJet 590 4 in 1	$650
HP OfficeJet 635C 4 in 1	$775
HP OfficeJet 710 4 in 1	$950
HP OfficeJet 1170C 4 in 1	$1360
HP OfficeLaser 3100 4 in 1	$1380
HP LASERJET 1100 600dpi, 8ppm	$740
HP LASERJET 1100A (Scan)	$910
HP LASERJET 2100	$1350
HP LASERJET 2100M	$1590
HP LASERJET 2100TN	$1880
HP LASERJET 4000	$2170
HP LASERJET 4000T	$2670
HP LASERJET 4000N	$2720
HP LASERJET 4000TN	$3260
HP LASERJET 5000 A3	$2740
HP LASERJET 5000N	$4270
HP LASERJET 5000GN	$5190
HP LASERJET 8000 A3	$4580
HP LASERJET 8000N	$5070
HP LASERJET 8000DN	$4620
PANASONIC LASER KX-P6100	$350
PANASONIC LASER KX-P6500	$520

SCANNERS

ACER 310P 4800dpi Parallel	$140
ACER 310S 4800dpi SCSI	$170
ACER 610S 9600dpi SCSI	$250
ACER 620ST 9600dpi (transparency)	$380
MICROTEC X6 A4 Scanner	$520
MICROTEC 35t PLUS A4 (Slide only)	$999
ARTEC Viewstation AS6E	$140
ARTEC Viewstation AM12S	$200
HP SCANJET 3200CParallel	$199
HP SCANJET 4100CUSB	$295
HP SCANJET 4200CUSB	$380
HP SCANJET 5200C	$450
HP SCANJET 6200C	$740
HP SCANJET 6250C	$930
CANON CanoScan FB320	$180
CANON CanoScan FB620	$270

MODEMS

56K (V90) Internal Dynalink V/F PCI	$80
56K (V90) External ACER Voice & Fax	$120
Netcomm Roadster II USVD56K Ser. oem	$200
Netcomm Roadster II USVD56K Ser.	$260
Netcomm Roadster II USV 56K USB oem	$240
Netcomm Roadster II USVD56K USB	$285
Netcomm InModem 56K (int) PCI oem	$110
Netcomm Card Modem 56K Flex	$270
Netcomm Card Modem Combo Ethernet	$320
Banksia WaveSP V90 Dual 56K oem	$210
Banksia WaveSP V90 Dual 56K	$240
3Com USR Sportster 56K External	$200
3Com USR Sportster 56K Ext Voice	$230
3Com USR V90 voice message Plus	$280
3Com USR V90 voice message Pro	$320
3Com USR Megahertz 56 Global PCMCIA	$345
Xircom RPort CardBus Modem 56 Global	$340
Xircom RPort Modem 56 Global	$340
Xircom RPort Fax/Modem 56	$270

TV TUNER, VIDEO CONFERENCING

Tekram KIT (Philip Camera & card)	$220
Kodak DVC-323, USB	$270
Matrox Marvel G200 8M AGPX2	$550
Spirit TV Tuner PCI	$130
Miro PC-TV Tuner	$260
Dynalink TV Tuner PCI	$130
COMPRO Plug & Snap PS-39	$290
Iomega Buz Ultra SCSI PCI & Video Cap	$390
Logitech QuickCam VC Parallel/USB	$168
Logitech QuickCam Home USB	$250
Logitech QuickCam Pro Parallel/USB	$270

TAPE BACK UP UNITS

Exabyte TR4 4-8G IDE	$630
Exabyte TR4 4-8G SCSI	$830
SONY DDS 4-8G 5010 Int. Tape drive	$1450
SONY DDS 4-8G 5000 Ext. Tape drive	$1680
SONY DDS4-8G 7000/R Int. Tape drive	$1550
SONY DDS 4-8G S7000 Ext. Tape drive	$1740
SONY DDS 12-24G 9000/R Int. Tape drive	$2000
SONY DDS 12-24G S9000 Ext. Tape drive	$2230
HP DAT8i Int. 4-8G DAT	$1720
HP DAT8e Ext. 4-8G DAT	$1900
HP DAT24i Int. 12-24 DAT	$2410
HP DAT24e Ext. 12-24 DAT	$2670

SCSI ADAPTOR CARDS

ADAPTEC 1502 ISA OEM	$65
ADAPTEC 2904 PCI OEM	$120
ADAPTEC 2940 ULTRA WIDE PCI OEM	$380
ADAPTEC 2940 ULTRA WIDE RETAIL	$595
ADAPTEC 2940 ULTRA 2 WIDE OEM	$540
ADAPTEC 2940ULTRA 2 WIDE RETAIL	$750
ADAPTEC 3940 Dual Channel U/W	$945
TEKRAM 390U PCI Ultra SCSI	$190

NETWORK ADAPTORS

Skymaster NE-2000 Comp. ISA/PCI	$30
Skymaster PCI 10/100 RJ45 oem	$50
D-Link ISA/PCI Combo Soho series oem	$30
D-Link ISA 10M Combo DE-528CT	$45
D-Link PCI 10/100 RJ45 DFE-530TX	$55
D-Link PCMCIA 10MB	$110
D-Link PCMCIA 10/100 DFE-650TX	$225
D-Link PCMCIA 56k/10/100 DMF-560TX	$470
SMC EtherPower 10/100 PCI bare	$105
Intel EEPRO 10/100 OEM card only	$120
Intel EEPRO PCMCIA E'net 10MB	$160
Intel EEPRO PCMCIA Fast E'net 10/100	$270
NetGear 10/100 Ethernet PCI Adaptor	$75
NetGear 10/100 PCMCIA Adaptor	$210
Xircom RPort E'net 10/100	$275
Xircom CreditCard E'net (100) + Modem56K	$570
Xircom RPort E'net (100) + Modem56K	$620

HUBS, PRINT SERVERS, ROUTERS, ETC

Accton 5-port 10BaseT Hub OEM	$110
Accton 8-port 10BaseT Hub OEM	$120
Accton 16-port 10BaseT Hub OEM	$200
Accton 8-port 10/100 Switching Hub	$680
Accton 16-port 100BaseT Hub	$1250
D-Link 5-port 4STP+1BNX+1Up SOHO	$80
D-Link 5-port DE805TP webby	$98
D-Link 8-port 8STP+1BNX+1Up SOHO	$100
D-Link 16-port 16STP+1BNX+1Up	$200
D-Link 4-port DFE904 10/100 Unmgt	$220
D-Link 8-port 100M Fast Ethernet	$320
D-Link 8-port 10/100 Fast Ethernet	$380
D-Link 16-port Hub 10/100 Fast Ethernet	$700
D-Link Internet Server DP-602, 10/100	$580
D-Link ISDN Routers DI-300MN, 10/100	$1580
Intel InBusiness 10M 5-port	$110
Intel InBusiness 10M 8-port	$130
Intel InBusiness 100BT 4-port	$215
Intel InBusiness 100BT 8-port	$375
Intel NetPort Express 10/100 Print Server	$420
Netgear Network Starter Kite	$190
Netgear 4-port Slimline 10BaseT Hub	$82
Netgear 8-port Slimline 10BaseT Hub	$115
3Com Office Connect Hub Tp4	$125
3Com Office Connect Hub TP 8 / TPO	$180
3Com Office Connect Hub 4x100 Unmgd	$230
3Com Office Connect Hub 12x100 Unmgd	$680
3Com SSII Entry Level Hub 12-port	$420
3Com SSII Hub 12-port 100BTX	$2420
3Com SSII Hub 10/100 500 24-port	$2800

DIGITAL CAMERAS

Canon PowerShot PS350	$550
Canon PowerShot PS600	$780
Canon PowerShot A5	$1150
Kodak DC-210	$900
Kodak DC-220	$1300
Epson Photo Pc700	$1290
Sony FD61 Standard	$1000
Sony FD71 Advanced	$1400
Sony FD81 Advanced	$1890

U.P.S. (POWER PROTECTION)

APC Backup 300 Multipath	$205
APC Backup Pro 280	$320
APC Smart-UPS 420	$480
APC Smart-UPS 620	$650
Liebert Ps250 PowerSure 250, Inline	$250

CABLES, SWITCHBOX, CONSUMABLES, ETC

Call or Visit our Web Site for details

SERVICES

We have fully qualified engineers and network consultants for services (hourly rate)

* Networking - On-Site	$120
* On-site Service Hardware	$80
* Hardware Service at Concord	$60
* Web Page Design/Internet Setup	$80
* Cabling/Virus Removal/Software Support	$60

TRAINING:

We have a fully networked training room and certified trainer at our Concord Headquarters. Subjects including Microsoft Office, Internet, Windows 95/98, NT, etc. Rate and minimum bookings available upon request

WE OFFER A FULLY INTEGRATED SOLUTION FOR YOUR COMPUTER REQUIREMENTS.

TERMS & CONDITIONS:
All prices include sales tax and are subject to our full terms and conditions of sale, a copy of which is available on request or in our web-site. **(For updated pricing please call or refer to our web-site)**

ORDERING & PAYMENT:
Ordering can be done by telephone, fax, e-mail or buy direct from our secure web-site.
We accept Bankcard, Mastercard, Visa, AMEX and Eftpos. All cheques and direct deposits need 7 working days clearance. (National Australia Bank, Strathfield, BSB: 082451, Account No.: 45979 7041).

DELIVERY:
FREE Nation wide delivery for orders over $500 and under 2Kg. SYDNEY METRO up to 20kg $10.00. Orders under 3Kg Nation wide $10.00. Additional weight per Kg $2.00. Delivery time approximately 1 - 2 working days for East Coast.

WARRANTY & RETURNS:
All goods sold carry manufacturer's warranty, either back to base or direct to the manufacturer's. We can't always guarantee compatibility. It is the customer's obligation to ensure that the correct goods are ordered. Before returning goods, you must obtain an RA# from us by phoning our support line. The returned goods must be unopened and well packaged for return within 7 days of receipt and must be accompanied by a copy of your invoice. A refund will be given minus 15% re-stocking fee. All delivery and insurance cost must be borne by the customer. Software is NOT refundable if opened.

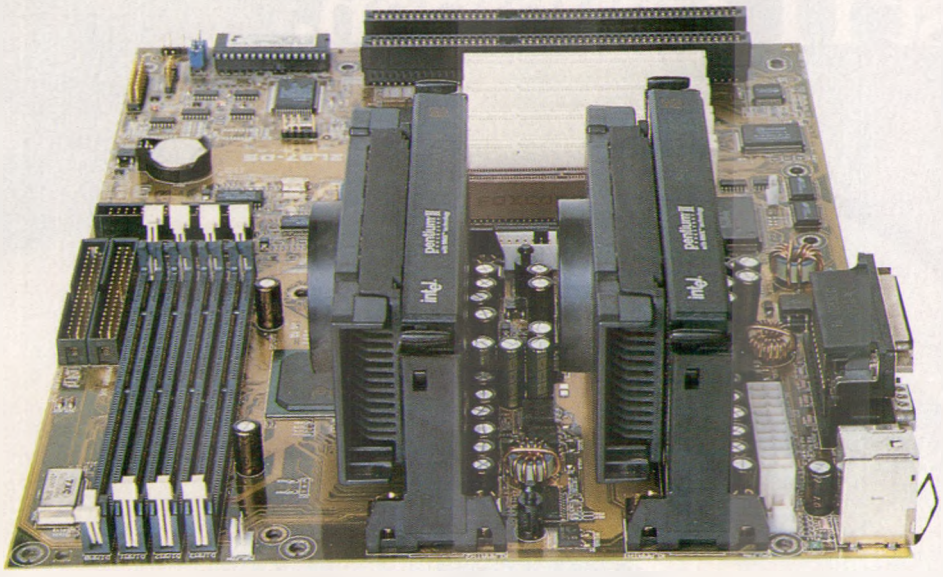
*) Trademarks & logos are the property of the respective owners. E & OE.

AMERICAN EXPRESS · Bankcard · MasterCard · VISA

ORDERLINE: 1300 368 922 (Local Call)
FAX: (02) 9715 2922 Support: (02) 9715 2877

Web site: www.fortecomputers.com.au
E-mail: sales@fortecomputers.com.au
Level 1, 101-105 Parramatta Rd., CONCORD. NSW 2137

Even Higher Performance!



Dual 500MHz Pentium III NT Workstation

- 2x500MHz Pentium III CPU
- Asus P2B-DS Motherboard
- Adaptec Ultra2 SCSI on-board
- 256Mb 100MHz Cert SDRAM
- Quantum 12.7Gb Fireball EX
- Diamond Viper 550 16Mb AGP
- Sony 32x CD ROM Drive
- Sony 1.44 Floppy Drive
- Soundblaster PCI64
- Macase Full Tower Case
- Sony 200ES 17" Monitor
- Windows NT Workstation
- Honeywell kbd, MS Mouse

$7,560

ASUS adaptec DIAMOND MULTIMEDIA

SONY MACASE Quantum

MATROX DIGISUITE

Dual Pentium III 450MHz NT Workstation

- Dual Pentium III 450MHz CPU
- Asus P2B-DS motherboard with Ultra-2 SCSI on-board
- 128Mb 100MHz Cert SDRAM
- Seagate Barracuda 9Gb Ultra-2 SCSI Hard Drive
- Diamond Viper 550 16Mb
- 32x Sony CD ROM Drive
- Sony 1.44 Floppy Drive
- Soundblaster PCI64
- ATX Full Tower Case
- Sony 200ES 17" monitor
- Windows NT Workstation
- Honeywell Enhanced Keyboard
- Microsoft Mouse
- Free Scala MM200 worth $399!

$7,560

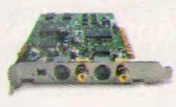
Pentium III 500MHz NT Workstation

- Pentium III 500MHz CPU
- Asus P2B motherboard
- 128Mb 100MHz Cert SDRAM
- Quantum 6.4Gb EX Hard Drive
- Diamond Viper 550 16Mb
- 32x Sony CD ROM Drive
- Sony 1.44 Floppy Drive
- Soundblaster PCI64
- Macase ATX Mid Tower Case
- Sony 200ES 17" monitor
- Windows NT Workstation
- Honeywell Enhanced Keyboard
- Microsoft Mouse
- Free Scala MM200 worth $399!

$4,590

Sigmacom has been appointed a dealer for Matrox Digisuite - the ultimate Real-time video editing system. Digisuite offers up to lossless video quality, balanced audio and over 100 2D real-time effects. Available with either Premiere 5 RealTime or Speed Razor 4RT. Call for a demo.

DVRaptor

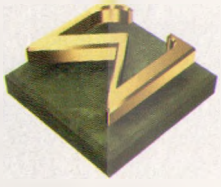


DVRaptor is the next generation Firewire editing solution for your DV camera. It features excellent video inlay, batch capture and playback from Premiere 5's timeline.

The DVRex-M1 offers hardware DV-analogue-DV conversion, Digital Audio IO and all the features of the DVRaptor. The ultimate DV solution!

canopus DVRex-M1

Online Quotes 24hrs 7 days - check out our *AutoQuote* and full product range at www.sigma.com.au

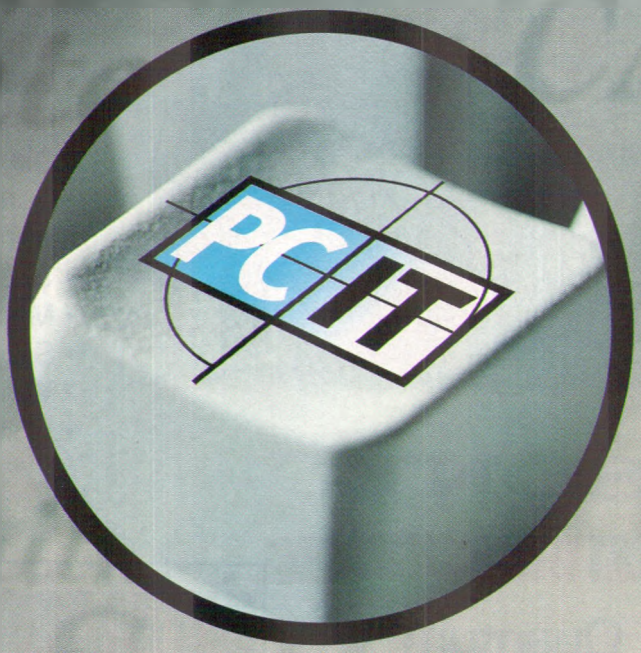


SIGMACOM PTY LTD

Suite 16 / 20-24 Gibbs St
Miranda NSW 2228
www.sigma.com.au

ACN 065 279 101
Tel (02) 9524 9846
Fax (02) 9540 4554

The key to new IT solutions? Don't miss Queensland's largest IT exhibition.



The Global Computer Communications & Networking Exhibition

Brisbane Convention & Exhibition Centre

11-13 May 1999

Tues 10am - 6pm • Wed noon - 8pm • Thurs 10am - 5pm

Feature Pavilions: Internet • Software • IT Recruitment • CADWorld

Plus: Free IT seminars

Register via the PC IT Website for your free entry ticket www.ausexhibit.com.au/pcit/
Business visitors welcome. Persons including children not in this category will not be admitted.

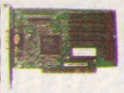
AES Australian Exhibition Services E-mail: pcit@ausexhibit.com.au Phone (03) 9820 8522 Fax (03) 9696 2106

The Largest Refurbished Warehouse in the Southern Hemisphere!

PC Component Over 30,000 in Stock!

Save Up to 80% of New Price!

1MB PCI Video Card.....$25.



Trident TGUI9440 PCI 1MB SVGA Video Card. Ungradable to 2MB of RAM and is fully tested with drivers! Resolution 1280 X 1024 in 16 million colours

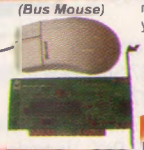
PCI Video Card + TV Out.....$69.



Bring big screen entertainment to your home or office computer! The VSPro V64 accelerator lets you Connect your PC directly to your TV or VCR for the best home theater experience from your computer! 64-bit Video Graphics Accelerator. Cirrus Logic CI5446 BitBLT engine. Internal VGA-to-TV/Video Scan Converter!

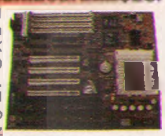
Microsoft InPort Mouse.....$19.

(Bus Mouse)



Stop using up those valuable IRQ's & Serial Ports. Use the Microsoft Bus Mouse which includes its own ISA interface card. Don't be caught without one of these famous rodents!

Pentium Pro Mainboard.....$29.



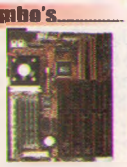
MB600N is a PCI M/B based on Intel 82440FX chipset! Inc: Super I/O PCI busmaster IDE, USB, 3.3V P/S, VRM on board Support upto Intel Pent. Pro 200MHz

3COM Network Bundle.....$39.



Inc: 2 x 3COM 3C509-TPO RJ45 network cards plus 5 mtrs. of c/o cable, drivers & installation notes!

Hot MainBoard Combo's.....



486 DX2-66 motherboard VLB *Plus* CPU *Plus* 8MB RAM fully tested ready to GO.....ONLY $60.00.

Pentium motherboard *Plus* Genuine Intel Pentium 90Mhz *Plus* 16MB RAM IDE, FDD & I/O onboard ready to GO.....ONLY $199.00

Pentium [illegible] M/B.....$69.



Supports: 70 - MMX 233 Pentium. IBM/Cyrix 6x86 6x86L/6x86MX(M2) & AMD K5/K6, IDT C6 CPU's, with RAM Support: 4 x 72 Pin EDO + 2 x 168 SIMM modules, 512K Cache, 3 ISA Slots, 4 PCI slots, 1 x Floppy Drive Interface. 4 IDE HDD upto 8.4 GIG each, I/O 2 x Serial, 1 Parallel, Cables & Manuals!

VLB Video & Fast I/O.....$35.



VLB Cirrus Logic CL-GD5430 1MB Video Accelerator Graphic Card Plus 2 x fast serial Ports, 1 x parallel & games ports, plus 4 x IDE HDD & 1 floppy Disk drive interfaces!

Refurbished Monitors.....$49.



12" IBM VGA Colour Monitor.....$49.
14" VGA Colour Monitor.....$79.
14" SVGA Colour Monitor.....$125.
14" SVGA Colour Digital.....$145.
15" SVGA Colour Monitor.....$189.
15" NEC XV15 SVGA Flat.....$215.
15" Samtron 5Ei SVGA Digital..$310.
17" Digital Hi Res SVGA.....$390.

Factory Refurb Hard Disk Drives

Seagate ST31276A
1.2GIG Hard Disk Drive
IDE Interface
3.5" Form Factor
2482 Cyl 63 Sectors 1275MB



$145

3.5" [illegible] Disk Drive.....$15.



1.44MB Floppy Diskette Drive. Fully Tested and ready to go! Save more than 50% on New Price on these Brand Names!

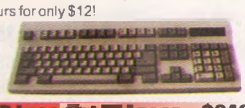
[illegible] II 3D Card.....$269.



VooDoo II 3D Games Card with 12MB RAM & PCI Bus. This is the worlds fastest 3D Games Card EVER!

[illegible]wall 101 Keybd.....$12.

Why not use the Keyboards Typists prefer. This Honeywell 101 key keyboard normally retails for more than $50. And it could be yours for only $12!



HP LaserJet [illegible] Laser.....$249.



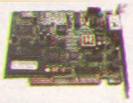
Hewlett Packard LaserJet III printer is one of the most robust Laser printers every built. With 5 MB RAM and fully refurbished. Test prints supplied!

3 Pcs. Sub & Speakers..$99.



3 Piece Speaker system including subwoofer & satellites with 600W of PMPO power & less than 1% distortion, a real must!

[illegible] Internal Modem.....$20.



Ideal 486 internal modem for email or surfing the net! Win '95 auto detect, completely tested ready to connect!

Desktop PC Case.....$20.



Case includes 200W P/S and houses up to 5 devices either 3.5" of 5.25". Like NEW!

Sound Blaster 16.....$55.



Sound Blaster 16 comes in 2 versions. One with IDE interface and the other with Panasonic, Sony & Mitsumi CD ROM interfaces. Please specify at time of order!

14" VGA Colour Mon.....$69.



These Unisys 14" colour monitors are fully refurbished and like new! VGA 640 x 480 Resolution, 16 million colours and picture perfect viewing!

[illegible]W PC Power Supply.$15.



This 200W Power supply & switch will fit most AT desktop or mini tower case! Runs from 386 to Pentium.

Jazz 506 Speakers.....$69.



The Jazz J-506 Speakers Specifications: 400W P.M.P.O., 4" full range driver, volume control, tone control, headphone jack, subwoofer output jack, power LED, 110x253x127mm (wxhxd)

Genuine Intel Pent. MMX 200



This very rare 2.8 Volt genuine Intel 200Mhz MMX CPU is now available at this ridiculous price! Upgrade that slow Pentium to MMX!

Motherboards

486 Mainboard 5 Vlt VLB.....$29.
486 Mainboard 3/5Vlt VLB.....$45.
Pentium FX M/B upto 133Mh.n/a.
Pentium HX M/B 200MMX....$50.
Pentium VXPro 233MMX.....$69.
Pentium TX upto 233MMX.....89.
Pentim Pro upto 200.....$29.

Processors (CPU)

Intel 486 DX2-66.....$29.
Intel 486 DX2-66 Overdrive....$35.
Intel 486 DX4-100 3 Vlt.....$85.
Intel Pentium 100.....$120.
Intel Pentium 133MHz.....$150.
Intel Pentium 166MHz.....$170.
Intel Pent. 200MHz MMX.....$199.
Bearing Fan & Heatsink.....$8.

Memory - RAM

1MB 30 Pin Simm -4Pcs.....$12.
4MB 30 Pin Fast Page.....$20.
4MB 72 Pin Fast Page.....$20.
8MB 72 Pin Fast Page.....$35.
8MB 72 Pin EDO.....$35.
16MB 72 Pin Fast Page.....$70.

Video Cards & TV Tuners

ISA EGA Video Card.....$15.
ISA 512K SVGA Card.....$10.
ISA 1MB SVGA Card.....$15.
VLB 1MB SVGA Card.....$15.
VLB 2MB SVGA Card.....$25.
PCI 1MB SVGA Card.....$25.
PCI 2MB SVGA Card.....$35.
PCI 12MB 3D VooDoo II..... $269.

Controllers & I/O Cards

ISA 16Bit Super I/O.....$6.
VLB I/O.....$10.
VLB I/O Enhanced 4 x HDD....$25.

Multimedia

External Parallel 8 x CD ROM Drv with Built-in Sound Card.....$199.
16 Bit Sound Card.....$29.
12 X CD ROM Drive.....$89.
400W Sub & Satellite Spkrs..$99.
Headset & Microphone.....$9.

Mass Storage (HDD, FDD)

3.5", 1.44MB FDD.....$15.
80MB IDE HDD.....$16.
130MB IDE HDD.....$25.
210MB IDE HDD.....$40.
245MB IDE HDD.....$50.
340MB IDE HDD.....$75.
420MB IDE HDD.....$85.
540MB IDE HDD.....$95.
630MB IDE HDD.....$115.
1.0 GIG IDE HDD.....$135.
1.2GIG IDE HDD.....$145.
120MB Notebook HDD 2.5" ...$50.

Input Devices

New 3 Button Serial Mouse....$9.
MS Ergo 2 Button Serial.....$18.
MS Ergo 2 Button PS/2.....$18.
101 Key AT Keyboard.....$6.
Original Honeywell 101.....$12.

PC Cases

Desktop Case & P/Supply....$20.
Minitower Case & P/Supply..$30.
200W Power Supply.....$15.
Power Supply Fan.....$8.

Modems

14.4 Internal Modem.....$29.
28.8 Internal Modem.....$49.
33.6 Internal Modem.....$69

Ethernet Cards

SMC 16bit RJ45.....$10.
Western Digital 16 Bit RJ45....$10.
Intel EtherExpress 16 RJ45....$15.
3Com RJ45$20.
Combo RJ45 & COAX.....$20.

Fully Refurbished PC Systems!

Compaq Refurb 1000

Genuine Compaq Deskpro XE466 - 80486 DX2-66!

Intel 80486 DX2-66 Includes:
Intel 80486 DX2-66 CPU
8MB RAM
3.5", 1.44MB FDD
270MB IDE HDD
1MB SVGA Card
Compaq 101 Key Keyboard
Built-in Sound Card
Compaq 2 Button Mouse
Attractive Compaq Case
Fully Refurbished & Ready to Go!

SAVE $90.
$175.



IBM Refurb 2000

Genuine IBM 80486 DX2-66 Personal Computer

IBM Student Special Including:
16MB RAM
3.5", 1.44MB FDD
520MB IDE HDD
1MB SVGA Card
IBM 101 Keyboard
Sound Card & CD ROM Drive
240V Amplified Speakers
14" SVGA Colour Monitor
IBM 2 Button Mouse
Fully Refurbished & Formatted!

SAVE $150.
$449.



The Pentium Refurb 3000

Original Intel Pentium 200MMX Personal Computer

Pentium MMX 200MHz Includes:
16MB RAM
3.5" FDD
830MB HDD
1MB SVGA PCI Card
16 Bit Sound Card
12 X CD ROM
240V Amplified Speakers
101 Key Keyboard & Mouse
14" SVGA Colour Monitor
Fully Refurbished & Formatted!

SAVE $230.
$699.



The GTS Special

IBM 300MX CPU With Power To Spare!

IBM 6x86MX PR300MHz CPU
3.5" 1.44MB FDD
64MB SDRAM
1.2 GIG Hard Disk Drive
1MB PCI Video Card
16 bit Sound Card & CD ROM Drive
240V Amplified Speakers
101 Key Keyboard
15" SVGA Colour Monitor
Mouse
Fully Refurbished & Formatted!

$899.



ISA TV Tuner & FM Radio.....$99

Watch TV or your favorite videos, capture full-motion video, and capture single-frame images all in the same package with AITech International's WaveWatcher TV. Full screen or minimized plus full editing capabilities

Includes: FM Tuner & Antenna
Phillips TV Tuner
SVHS. Input
And Much Much More!



Don't Pay till you get your goods anywhere in Australia!

Plus

30 Day Money Back Guarantee!

Open 6 Days a Week

Week days 9.00-5.00pm & Sat 10.00-3.00pm

AUSTRALIA COMPUTE RECYCLER

No.1 in Recycled Computers & Components!

AUSTRALIAN COMPUTER RECYCLERS

On-line Shopping: www.pcrecyclers.net

77 INDUSTRIAL DRIVE BRAESIDE VICTORIA 31

FreeCall 1800883311 Local: (03) 95803433 FAX: (03) 95806

EMAIL: sales@pcrecyclers.net

Best Prices & Service in

NEW FOR WINDOWS 95 AND NT

ServerMagic VERSION 2.0



$850

DriveImage V2 Complete HD Imaging



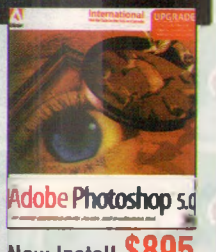
Desktop $115 Pro Pack $1325

SQL Server V7 + 5 CALs



$2099 -Upg $785

Adobe PHOTOSHOP V5



New Install $895

EVERY DAY LOWEST PRICES

ABC Flowcharter V7 - Licence	$359
ABC Flowcharter V7 (+Free V4)	$429
ACT V4 for Win95/NT	$155
Adobe Acrobat V3.0.1	$333
Adobe Publishing Collection	$1825
• SPECIAL - Adobe Illustrator V8	$595
Adobe PageMaker 6.5	$1090
Adobe Photoshop V5	$895
ArcserveIT V6.6 W/Group Ed	$750
ArcserveIT V6.6 Pro Pack Option	$890

TRY OUR ONLINE SHOPPING EXPERIENCE

www.corpsoft.com.au

Check for latest pricing & Special Offers

AutoCAD LT 98 - NEW !!!	$749
AutoCAD LT 98 - Upgrade	$365
Borland Delphi V4 Pro	$459
• SPECIAL- Borland J Builder Pro	$375
• SPECIAL- Borland C++ Build/ProV4	$495
Citrix MetaFrame Workgroups	$2750
• SPECIAL - Cleansweep V3	$25
Cleansweep Extra Strength V4	$85
• SPECIAL - Corel Draw V8	$649
Corel Draw V8 - Upgrade	$439
Corel Ventura V8 - Upgrade	$399
• SPECIAL - Corel W/Perf Suite V8	$269
Corel W/Perf Suite V8 Upg	$199
Corel W/Perf V8 +Dragon	$349
Corel W/Perf V8 +Dragon Upg	$249
Crystal Reports Pro V7	$595
Crystal Reports Pro V7 Upg	$330
Diskeeper V4 for NT Workstation	$109
Diskeeper V4 for NT Server	$495
Dragon Nat. Speaking **Mobile**	$649
Dragon Nat. Speaking Pref	$305
Drive Image - NEW V2.0	$115
Easy CD Creator Deluxe V3.5	$155
Logitech QuickCam Home	$260
Lost & Found	$109
Lotus Smartsuite Millen. Full	$299
Lotus Smartsuite Millen. Upg	$179
NEW Macromedia DreamTeam Acad	$649
(Includes Flash, Fireworks & Dreamweaver 2)	
Macromedia Freehand V8	$595
Masterclips 1,000,001	$175

BUYING IN BULK?

Further discounts available depending on quantity. We guarantee to save you money.

MAUS Debt Collector	$174
MAUS Job Description	$174
MAUS Masterplan Pro	$174
MAUS Stockmarket Plus	$174
McAfee VirusScan V4	$70
Micrografx Optima V2.5	$1099
MS Collection 98 - NEW !!! *(includes: Money 98, Encarta Atlas, Greetings Workshop)*	$59
MS FrontPage 98	$169
MS IntelliMouse from	$50
MS Project 98 - NEW !!!	$749
MS Project 98 Upgrade	$314
• SPECIAL - MS Publisher98 from	$120
WinNT Server 4 Resource Kit	$284
WinNT Wkstn 4 Resource Kit	$128
• SPECIAL - MS VisualBasic V6 Pro	$699
MS VisualBasic V6 Pro Upg	$435
• SPECIAL - MS Visual C++V6 Pro	$699
MS Visual C++ V6 Pro Upg	$435
MS Windows 95 Upg CD	$152
MS Windows 98 Upgrade	$152
MS Win98 Resource Kit	$109
MS Works V4.5 for Win95/98	$94
• SPECIAL - MS Word 97	$189
• SPECIAL - MS VisualStudio Pro	$1299
• SPECIAL - MS VisualStudio Ent	$2199
MYOB Accounting V8	$345
MYOB + Payroll V8	$495
Norton SystemWorks V1.1	$168*
*(*after $30 Cashback from Symantec)*	
Norton 2000	$65
Norton AntiVirus Gold V5	$84
Norton Utilities Gold	$104

SOFTWARE HOTLINE

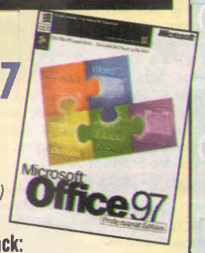
Call us with your best genuine software quote. We guarantee to save you money.

OmniForm V3	$289
OmniPage Pro V9 Up/Cross	$209
OmniPage Pro V9 -New Install	$475
Paintshop Pro V5	$135
Partition Magic V4	$105
Pagis Pro V2	$215
PC Anywhere V8	$195
Reachout Enterprise - NEW!	$269
Seagate Agent for SQL	$750
Seagate B/up V7.2 - NT Serv.	$795
Seagate B/up Enterprise V7.2	$1875
Seagate B/up V3 Win 98/95	$125
Sidekick 99 - New for Win95/98	$90
System Commander Del. V4	$125
TypeQuick (for Windows)	$74
VET Net Surfer AntiVirus	$83
VISIO Professional V5	$505
VISIO Technical V5	$505
VISIO Standard V5	$230
VISIO IntelliCAD 98	$525
Visual CAFE Pro Ver 3 - NEW !!!	$365
Winfax Pro V9	$128
WS_FTP Pro Ver 6	$95

$50 CASHBACK

Hurry Offer Ends Soon!!

Microsoft Office 97 + FREE* Office 2000 (*excludes shipping)



After $50 cashback:

- Office 97 Std - New Install* **$419**
- Office 97 Std - Upgrade **$349**
- Office 97 Pro - New Install* **$529**
- Office 97 Pro - Upgrade **$469**

MOLP / LICENCES

- Office 97 Std - New Install* **$409**
- Office 97 Pro - New Install* **$509**

Upgrade bundle with competitive product – limited stocks

Microsoft OFFICE 2000 FREE

Until June 30, 1999 when you purchase **Office 97 Standard** or **Pro** you are eligible for a FREE* copy of **Office 2000 Upgrade**

*(*excludes shipping)*

Microsoft MOLP/LICENCES

CALL US FOR YOUR VOLUME MICROSOFT LICENSING REQUIREMENTS

We Guarantee to save you money eg: Office Std -New Install $499 (save $200)

CORPORATE CLEARANCE

Stocks Are Limited. Save $100s!

- Borland J Builder Pro **$375**
- Cleansweep V3 for Win95 **$25**
- MS IntelliMouse **$65**
- MS Office Pro V4.3 **$469**
- MS Word V6 **$210**
- McAfee WipeOut Uninstall **$24**
- Windows95 Upgrade - CD **$152**
- MS VisualBASIC ProV5 ~~$400~~
- MS VisualStudio ProV6 **$1299**
- Logitech Mouseman Plus **$49**

Ideal for Corporate & Government Buyers.

CORPORATE SOFTWARE AUSTRALIA PTY LIMITED

Unit 1, 28 Victoria St, Smithfield NSW 2164
PO Box 6168, Wetherill Park NSW 2164

100% AUSTRALIAN OWNED
Over 12 years in operation

Australia – Guaranteed!

APRIL 1999 MICROSOFT LIQUIDATION

Microsoft Publisher 98



1-4 Units **$135**
5-9 Units **$128**
10+ Units **$120**

Microsoft Front Page 98



$169.00

Visual BASIC Professional V6



$435.00
(Save $300)
This special offer is for owners of MS Office Pro

Microsoft Intelli Mouse



1-4 Units **$65**
5-9 Units **$55**
10+ Units **$50**

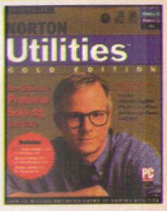
SYMANTEC BEST SELLERS

Norton AntiVirus GOLD Edition



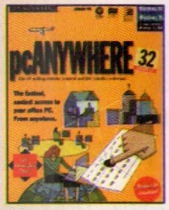
$84.00
10 User Pack
$725.00

Norton Utilities GOLD – NEW!



$104.00
Upgrade for $85

PC Anywhere NEW V8



for Dos/Win3 Win95/NT
$195.00

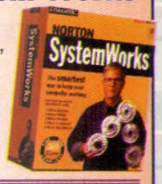
WinFax Pro VERSION 9



For Win95/NT
$128.00
Upgrade for $99

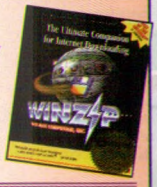
ESSENTIALS

Norton System Works



NEW V1.1
Incl: Norton Utilities, AntiVirus, Uninstall and *Bonus Pack*
$168.00*
*after $30 cashback from Symantec

NEW!!! WinZip V7



$65.00
10 User pack $450

Partition Magic V4 NEW VERSION



$105.00
Upgrade $65

BIG SELLERS

PaintShop Pro V5



Including: FREE ANIMATION WORKSHOP
$135.00

Diskeeper V4 NEW VERSION



$109 W/station
Upgrade $65
$495 Server
Upgrade $225

OmniPage Pro V9 NEW VERSION



New Install
$475.00
Upgrade $219

DRAGON Naturally Speaking Preferred



Including FREE Microphone
$305.00

BIG BIG SAVINGS ON BACKUP SOFTWARE

Seagate BACKUP



Version 7.2
NT Server - **$795**
NT Enterprise - **$1875**
Agent SQL/Exch **$750**
Win95/98 V3 - **$125**

ARCserveIT Version 6



Backup for NT Server
Workgroup **$750** ProPack **$890**

NEW LOW PRICING



Microsoft Windows NT Server 4.0 +5 CALs
$1125

• WinNT Server 4 Resource Kit	**$284**
• WinNT W/station V4.0 Full	**$468**
• WinNT W/station Lic (Min Qty)	**$395**
• WinNT W/station V4.0 Upgrade	**$225**
• WinNT W/station 4 Res. Kit	**$128**
• Diskeeper V4 for NT W/station	**$109**
• Diskeeper V4 for NT Server	**$495**
• MS WinNT Server 4 Licence	**$975**
• MS WinNT Client Lic 20 Pack	**$900**

COREL CORNER

Corel Word Perfect 8 + Dragon Naturally Speaking UPGRADE



$249
New Install $349



CorelDraw Version 8 SPECIAL OFFER
$649.00
Upgrade $439

PLEASE NOTE:
- Delivery: Post $10 or Courier $14
- We Accept Bankcard Mastercard & Visa – Phone, Fax and Mail Orders Welcomed
- Goods ordered in error incur a 15% restocking fee
- We Accept authorised returns for Credit within 10 days if goods are unopened and in saleable condition
- Prices Include Sales Tax Where Applicable
- Moneyback Offers (if any) are the responsibility of the manufacturer. E.& O.E
- All Prices are Subject to Change Without Notice

APC/PCW/PCW 4/99

We GUARANTEE to beat any genuine competitor's price!!!

Phone (02) 9725 3700 • Fax (02) 9604 1983
VISIT OUR WEB SITE AT: CORPSOFT.COM.AU

COMPANIES INSIDE

- Altima Computers
- Auscript
- Critical Systems
- Diskmax Technology
- Ecom Computers
- Fagan Microsystems
- Gillins Enterprise
- Microstructure
- New Reality Resources
- Odyssey Development
- Open Systems Pty Ltd
- PC Service centre
- Pelham Pty Ltd.
- Performance Memory
- Polygon Systems
- Promotional Enterprise
- Recojet International
- Rite Price Computer Wholesale
- Spitfire Toner Recharger
- Techflex Australia
- Telset Technologies
- Total Data Capture
- Ultimate Computer Technology
- Wolf Ruckett

SUPERIOR PERFORMANCE

INKJET REFILLS

OUR INKS ALWAYS PRINT AS GOOD, IF NOT BETTER THAN THE ORIGINAL!

100% SATISFACTION GUARANTEED

IMPROVED New INKS

BLACK INKJET REFILL KITS FROM ONLY- $29.90

BLACK KITS INCLUDE SUPERIOR, DENSE & SHARP BLACK INK!!

DESCRIPTION	No. of Refills	Kit Code
CANON BJ-30	60	20-BKL
CANON BJC-70/80	60	21-BKL
CANON BC-01/02 BJ-10E/20/BJ-200/BJC-210/210SP/240/255	9	3-BKL
CANON BJ-300/ 330	7	4-BKL
CANON BJC-600/610/620	16	5-BKL
CANON BJC-4000/4100/4200/4550/5000/5500 BCI-21	45	19-BKL
CANON BJC-4000/4100/4200/4550/5000/5500 BC-20	9	18-BKL
HP Desk Jet 400/500/600C/660C/690C Series	6	8-BKL
HP Desk Jet 700/850C/855C/870C/1000C Series	6	29-BKL
HP Deskjet 300 Series & Olivetti JP's!	8	7-BKL
EPSON Stylus 400/800/800+/1000	8	1-BKL
EPSON Stylus Colour /PRO/XL	8	2-BKL
EPSON Stylus 820/colour II/IIs	12	23-BKL
EPSON Stylus Colour 200/300/400/440/500/600/640/740/800/850/1520	12	33-BKL
IBM/LEXMARK 4076/1000/1020/5000/7000 Series	6	35-BKL
CANON, EPSON, HP Fluorescent & Photo Realistic Kits!	12	Please Call!

BUY 3 GET 1 FREE

COLOUR INKJET REFILL KITS FROM ONLY- $39.90

COLOUR KITS INCLUDE CYAN, YELLOW & MAGENTA INKS!!

DESCRIPTION	No. of Refills	Kit Code
CANON BJC-70/80	3x30	22-CLR
CANON BJC-210/210SP/240/255	3x12	25-CLR
CANON BJC-600/610/620	3x8	10-CLR
CANON BJC-4000/4100/4200/4550/5000/5500 BCI-21	3x30	17-CLR
HP Colour Desk Jet 300/400/500/600C/660C/690C etc. & Olivetti!	3x12	14-CLR
HP Desk Jet 700/850C/855C/870C/1000C Series	3x3	30-CLR
EPSON Stylus Colour /PRO/XL	3x4	16-CLR
EPSON Stylus 820/colour II/IIs	3x12	24-CLR
EPSON Stylus Colour 200/300/400/440/500/600/640/740/800/850/1520	3x12	34-CLR
IBM/LEXMARK 4076/1000/1020/5000/7000 Series	3x6	36-CLR
CANON, EPSON, HP Fluorescent & Photo Realistic Kits!	12/Colour	Please Call!
New!! Epson Photo 700 & Canon Photo 7000 Kits!		

SAVE AT LEAST 80% AND BE PRINTING AGAIN IN NO TIME!

REUSE RECYCLE REFILL

USING NEW REALITY RESOURCES INKJET REFILL KITS WILL NOT VOID YOUR PRINTER'S WARRANTY.
BEWARE OF INFERIOR COPIES, BUY THE "ORIGINAL" REFILL KIT!

BUY SMART BUY DIRECT & SAVE

AUSTRALIA WIDE FREECALL-

1800 680 605

AUSTRALIAN MANUFACTURERS AND PROUD OF IT!

NEW REALITY RESOURCES PTY. LTD.

Australia Wide FREECALL - 1800 680 605
QLD Phone - (07) 3245 2411 Fax - (07) 3245 2755
VIC Phone - (03) 9878 8288 Fax - (03) 9878 3933

Bayside Business Park
Shop 1 / 70 Redland Bay Rd
Capalaba Q 4157

FREE AUSTRALIA WIDE DELIVERY! SAME DAY DISPATCH!!
COD * MONEY ORDER * CHEQUE * MASTER * VISA * BANKCARD * AMEX ACCEPTED



BEST!

Telephony & Computer Headset Specialists

Speech Recognition • Internet Telephony • Interactive Gaming

For more information on our complete range of products visit our Website at: **www.telset.com.au**

Telset. Technologies

Australian & New Zealand Distributor

FREECALL IN AUSTRALIA
1800 653 424
FREECALL IN NEW ZEALAND
0800 835 738

Andrea



ANC 1000

Improve your Notebook's memory.

NOW WE CARRY REFURBISHED COMPAQ, TOSHIBA, AST, & OTHER NOTEBOOKS

All major brands. All major models.
If the memory for your notebook is out there anywhere, it's in here.

Performance Memory & Peripherals

Tel (02) 9906 4533 Fax: (02) 9906 1871
Suite 1, 109 Alexander St, Crows Nest, NSW 2065
www.performancememory.com.au

Firewalls & URL Filters

Virtual Private Networks

Terminal Emulation

Network Fax Servers

Open Systems Pty. Ltd.

(ACN: 003 817 017)

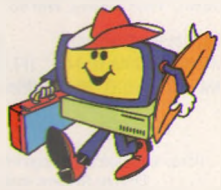
Tel: (02) 6261 4900 Fax: (02) 6257 9800
Email: info@opensystems.com.au
Internet: www.opensystems.com.au

Computer Fairs Australia

Bathurst - May 29 Bathurst Showground Great Western Hwy Bathurst	**Newcastle - April 18, May 23** Newcastle PCYC Melbourne Road Broadmeadow
Canberra - April 10, May 8 National Hockey Centre Mouat Street Lyneham ACT	**Parramatta - April 17, May15** Parrammatta Town Hall Church St Mall Parramatta
Central Coast - April 24, May 22 Erina High School The Entrance Road Erina	**Wollongong - April 11, May 9** BHP Sports Stadium Waples Rd Unanderra

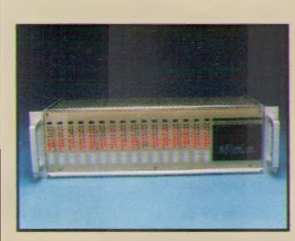
Open 10am - 3pm
Entry $2 (Kids FREE!)

For enquiries call Hazel & Glenn on 0414 96 1117 or visit our web site www.computerfairs.com.au



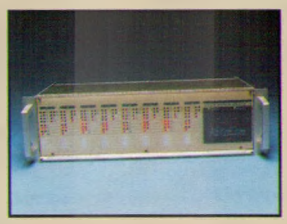
www.computerfairs.com.au

AdvanCom. FOR EXCELLENCE IN MODEMS



RMS-32 Rack Modem System

- Contains 32 modems, V.34bis in one standard 3U high, 220mm deep 19" sub-rack
- RS232 compatible serial port connection via RJ45 connectors
- **Unique features:** such as forced hardware reset, telephone line can be busied, modems can seize telephone line when power is lost.



SMS-16 Secure Modem System

FOR PROTECTION FROM UNAUTHORISED ACCESS

- One to three levels of security, login name + password + call-back telephone number
- Prompts are configurable
- Option of waiting for remote modem to hang up before commencing call-back



C-MoDeM-192 Audio Channel Modem

- Data rates of 4800, 9600, 19200 & 38400 bps
- Synchronous & asynchronous RS232 compatible serial port

Applications include:

- Point-to-point communications
- Multi-drop networks radio
- Reticulation of data, over spare radio channels, in existing audio/video distribution backbones
- Cable TV networks

FOR SALES AND ENQUIRIES

Gillins Enterprises Pty Ltd Phone: (08) 9367 6431 Fax: (08) 9474 5586
Email: gillins@iinet.net.au WWW:http://www.advancom.com.au

BULK INKJET REFILLS

STROUDCO
Specialists in Inkjet Solutions

'INKJET REFILL SECRETS' FREE with every order

- How to save 95% on printing
- Rectify common printing problems
- Refilling as a business
- Water Proof Printing

BLACK REFILLS from only $25.00

PRINTER	NO. OF FILLS	KIT NO
CANON BJ30/70/80 BCI-10/11 BK	30/80	C10
CANON BJ10/BJ200/BJ210/BJ210sp/BJ255sp	7	C2/C2A
CANON BJC600/610/620	15	C5
CANON BJC4000/4100 /4200/4550 BCI-21/20	50/8	C8
CANON BJC 7000	12	C15
HP DESKJET 400, 500 & 600 SERIES	7	H2/H4
HP DESKJET 820C/850C/855C/870C/1000C	6	H6
HP DESKJET 720/890/Officejet 1150	6	H13
HP DESKJET 1200 B, Y, C, M	6	H8
EPSON STYLUS 400/800/1000	8	E1
EPSON STYLUS COLOUR / PRO / XL	6	E2
EPSON STYLUS 820 / COLOUR 11/11S/200	12	E4
EPSON COLOUR 400/500/600/700/Photo Ex	12	E7
EPSON COLOUR 440/640/740/800/850/1520	12	E7
IBM 4076/LEXMARK	6	M1
OLIVETTI	8	H1
XEROX 4004/C.ITOH CJ300	6	M3

COLOUR REFILLS from only $35.00

PRINTER	NO. OF FILLS OF EACH COLOUR	KIT NO
CANON BJC70/80	60	C11
CANON BJC210/BJC210sp/BJC255sp	10	C3
CANON BJC600/610/620	8	C6
CANON BJC4000/4100/4200/4550 BCI-21	30	C9
CANON BJC 7000	6	C16
HP DESKJET 400, 500 & 600 SERIES	12	H3/H5
HP DESKJET 820C/850C/855C/870C/1000C	6	H7
HP DESKJET 720/890/Officejet 1150	4	H14
EPSON STYLUS COLOUR / PRO / XL	6	E3
EPSON STYLUS 820/COLOUR/11/11S	12	E5
EPSON COLOUR 200/400/500/600/800/1520	12	E8/E9
EPSON COLOUR 440/640/740	12	E9
IBM 4076/Lexmark	6	M2

PHOTO CARTRIDGE REFILLS AVAILABLE

BULK INK AVAILABLE

WEB: www.stroudco.com

Free Delivery

PHONE / FAX ORDERS & ENQUIRIES

(03) 9720 9946

Fast Service Same Day Dispatch
Money Order, Cheque, C.O.D.,
Credit Cards Accepted

PO Box 729, Heathmont, Victoria 3135

Duplication



CD-ROM

Professional CD-R services

Quick turnaround -
Up to 1000 copies in 24 hrs !

Competitive prices -
10 copies @ $10.00 each
20 copies @ $9.00 each
50 copies @ $7.00 each
100 copies @ $6.00 each
200 copies @ $5.00 each
500 copies @ $4.00 each
includes printing and cases.

- Premastering from ZIP / LS-120
- Custom printing on blank CD-R

DISKETTE



- Fast turnaround - Same day / next day delivery
- Highest grade media
- Label printing and labeling

Call us today for best quote

Visit our web site for latest prices

DISKMAX
TECHNOLOGY
(02) 9699 3333
john@diskmax.com.au
www.diskmax.com.au

POLYGON SYSTEMS PTY. LTD.

Ph: 9518 9745 Fax: 9518 9746

Shop 6, 233 Harris St, Pyrmont NSW 2009
Hours 9 - 5.30 Mon-Fri, 9 - 4 Sat, 11 - 2 Sun
5 minutes from Darling Harbour

Open 7 Days.
Late Night Thursdays

POLYGON COMPUTER SYSTEMS



Pentium II Celeron from $2099

- Gigabyte BXE motherboard
- 64MB SDRAM
- Intel 740 8MB graphics card
- ESS 16bit sound card
- 6.4GB Fujitsu hard drive
- 36x Mitsubishi CD-ROM
- Mitsubishi 15" monitor
- 120W speakers
- 56k Dynalink fax/modem
- Canon BJC 255SP printer
- Umax 610P Scanner

Intel Pentium II from $2399

- Gigabyte BXE motherboard
- 64MB SDRAM
- Intel 740 8MB graphics card
- Creative Sound Blaster 16
- 6.4GB Fujitsu hard drive
- 40x Mitsubishi CD-ROM
- Mitsubishi 17" monitor
- 480W speakers
- 56k Dynalink fax/modem
- Death to the human corrupters

NOTEBOOKS

Featron $2349
Pentium 233MMX, 12.1" TFT, 32MB RAM, 3.2GB HDD, 20xCD, Carry bag

Acer Extonsa 500T $2899
Pentium 233MMX, 12.1" TFT, 32MB RAM, 3.2GB HDD, 20xCD, 56k fax/modem, NiMH Battery, Win 98

Mega Image Diamond $2999
AMD K6-2 400MHz, 14.1" TFT, 64MB RAM, 3.2GB HDD, 20xCD, Windows 98

Compaq Armada 1592DT $2999
Pentium 233MMX, 12.1" TFT, 32MB RAM, 3.2GB HDD, 20xCD, Win 98

Toshiba 2520 CDT $3399
AMD K6-2 300MHz, 12.1" TFT, 64MB RAM, 24xCD, 4GB HDD, Win98

Twin Head $2999
Pentium 233MMX, 12.1" TFT, 32MB RAM, 3.2GB HDD, 20x CD-ROM, Windows 98

PERIPHERALS

Mitsubishi 36X Speed CD-ROM	$95
Panasonic 8x4x SCSI CDR kit	$575
Dynalink Internal 56k Fax/Modem (SVD)	$119
UMAX Astra 610P Colour Flatbed Scanner	$169
UMAX Astra 1220P Colour Flatbed Scanner	$279
UMAX Astra 1220S Colour Flatbed Scanner	$479
Canon BJC-255SP colour printer	$179
Canon BJC80 portable colour printer	$349
Epson Stylus 640 Colour Inkjet printer	$319
Hewlett Packard 6P Laser Printer	$1249
OkiPage 4W Laser Printer	$399
SONY 15" trinitron monitor	$575
Mitsubishi Diamond Plus 71 17" (.25dp)	$725
CTX 17" (0.25dp, 1600x1200@75Hz)	$789

Prices are subject to change without notice. All sale items are cash items only prices. Polygon Systems shall not be liable for errors or omissions herein.

Call for latest prices on any item

BETTER!

Telephony & Computer Headset Specialists

Speech Recognition • Internet Telephony • Interactive Gaming

For more information on our complete range of products visit our Website at: **www.telset.com.au**

Telset. Technologies
Australian & New Zealand Distributor

FREECALL IN AUSTRALIA
1800 653 424
FREECALL IN NEW ZEALAND
0800 835 738

Andrea



ANC 500

Network Hardware



Cards

ISA 16 Bit	$ 28.00
PCI 32 Bit	$ 32.00
PCI 10/100 Fast	$ 55.00
PCMCIA BNC/UPT	$ 115.00
PCMCIA 10/100 Fast	$ 269.00

Cables

2 Metre	$ 7.95
10 Metre	$ 12.00
20 Metre	$ 20.00
Made to Order	$ Call

Crossed Add $ 3.00 e.a.

Sockets

Wall Mount Sockets 1-3 Outlets
Phone/Fax & Computer $ Call

Cat 5 Wire

Wire (per Metre) $ 0.60

Starter Pac's

Fast Games Pack

2xFast PCI (10/100) Cards
1x10 M Crossed Cable
Normally $ 125.00
$ 99.00

PC-PC 10 Base T Pac

2 x PCI 32 Bit Cards.
1 x 5Port 10T Hub
2 x 10 m Cables.
$149.00

PC-Laptop 10 Base T	$ 239.00
PC-PC 100 Base T Pac	$ 299.00
PC-Laptop 100 Base T Pac	$ 520.00

56K Modem (Voice & Fax)

$ 149.00

No.1 Supplier to Schools & Small Business

Hubs

5 Port 10 Base T	$ 79.00
9 Port 10 Base T	$ 99.00
16 Port 10 Base T	$ 179.00
4 Port 100 Base T	$199.00
8 Port 100 Base T	$349.00
16 Port Dual Speed (Rack)	$ 1499.00
24 Port Dual Speed (Rack)	$ 1999.00

All Prices include Sales Tax.
$ 8.00 per Order P/P anywhere in Australia
$ 5.00 per Order COD
Installation, Service & Support Available

Ph. 07 3371 6001
Fax. 07 3371 6199

Critical Systems (Aust) Pty Ltd

Improve your

PC's

memory.

All major brands. All major models. If the memory for your notebook is out there anywhere, it's in here.

Performance Memory & Peripherals

Tel (02) 9906 4533 Fax: (02) 9906 1871
Suite 1, 109 Alexander St, Crows Nest, NSW 2065
www.performancememory.com.au



I.T. Wants You...

Huge Salaries...

A critical 3 to 1 shortage of Microsoft Certified staff (MCSE's) has exploded salaries worldwide!

*You can be Microsoft Certified in 10 hours - even if you have just one year of I.T. experience - **guaranteed!***

MCSE's can ear $100,000+ p.a. with I.T. experience; or $40,000+ p.a. without any! Getting a job is easy.

*Hurry, call **03-9584-2896** for a free brochure.*

ULTIMATE IT Learning Centre

Microsoft Certified Solution Provider

UCode 4216

ECOM COMPUTERS

www.ecomcomputers.com.au **Email:**info@ecomcomputers.com.au

OPEN 9am to 5:30 pm MONDAY to FRIDAY – 10am to 4pm SATURDAY

SYDNEY CBD 33 York St, Sydney 2000
PH: (02) 9299 0022 FAX: (02) 9290 1173

NEUTRAL BAY 4/120 Military Rd, NSW 2089
PH: (02) 9904 4400 FAX: (02) 9904 0847

ERINA 202 The Entrance Rd, NSW 2251
PH: (02) 4367 0299 FAX: (02) 4367 0298

Upgrade Now

IBM M2 300MX $749

IBM333MX $799

AMD k6-2 3DNOW

300MHz $849
333MHz $899
350MHz $949
400MHz $999

Pentium II Celeron

300A $849
333MHz $899
366MHz $999
400MHz $1049

Systems Prices Include:
- Latest PnP M/Board
- 32mb SDRAM
- 3.2gb U-ATA Hard Disk
- 2m 3D Video
 8m AGP 3D for Pentium
- 36 Speed CD ROM
- 16bit A3D Sound
- Mini case & 1.44 FDD

Options:
Monitor:14"$249, 15"$279
Windows 95/98 $169
HD:4.3g +$19, 6.4g +$59

Challenger

PentiumII celeron 300A$1299 400A$1499

PentiumII celeron 128k

333MHz $1349
366MHz $1399

Pentium II 512k

350MHz $1549
400MHz $1749

AMD K6-2 3D NOW

300$1299 333$1349
350$1399 400$1499

Systems Prices Include:
- Latest 100MHz M/Board
- 32 mb SDRAM
- 3.2 gb U-ATA Hard Disk
- 4 mb AGP 3D Video
- 36 Speed CD ROM
- 3D Sound+120w spker
- Mini case + 1.44 FDD
- 104 Keyboard + Mouse
- 15" SVGA Digital Monitor
- Windows 95/98 Software
- AntiVirus Software

Upgrade:
17" Monitor $199, 64m $89
HDD: 4.3gb $19, 6.4gb $59
56k V90 Internal Modem$99

Explorer

PentiumII 512k 350 $1999 400 $2249

PII 512k 450 $2649

PentiumII celeron 128k

300$1749 333$1799
366$1899 400$1949

AMD K6-2 3D NOW

300$1749 333$1799
350$1849 400$1899

Systems Prices Include:
- BX/AGP 100MHz M/Board
- 64mb 100MHz SDRAM
- 6.4gb U-ATA Hard Disk
- 8mb AGP 3D Video
- 36 Speed CD ROM
- 3D Sound+480w spker
- Midi case + 1.44 FDD
- 104 Keyboard + Mouse
- 56k V90 PCI Modem
- **17" SVGA Monitor 0.27**
- Windows 95/98 Software

Upgrade:
128m $179, 19"Mon$799
HDD: 8.4gb$79, 10.2g$149

P/// PowerMate

- **PentiumIII 450 MHz**
- Intel BX Motherboard
- 128 mb 100MHz SDRAM
- 10gb HDD 7200rpm
- 16mTNT or Banshee Video
- 40x CD ROM
- A3D 64 Wavetable Sound
- 600w Subwoofe Speakers
- Deluxe ATX Tower Case
- 3.5" 1.44m FDD
- 104 Keyboard
- Logitec Mouse
- 56k V90 Internal Modem
- 17" Colour Monitor
- MS Windows 98/ or NT4

$3499

NoteBook

Acer Extensa 710DX
Pentium II 233 32mb /2.1gb, 12.1"DSTN Colour, 20x CD, Win98
Bonus 56k Modem
$2799

Acer 712TE PII 300
Pentium II 300MMX, 64mb/6gb, 13.3" TFT Colour, 24x CD, Win98,
56k Modem $5499

Acer Travemate, only 1.3kg
Pentium233 MMX, 32mb/3.2gb, 8.4" TFT Colour, FDD& CD, Win98,
56k Modem $3199

Motherboard With CPU

IBM(Cyrix) M-II CPU M/B with VGA & Sound
300 $249 333 $299

AMD K6-II 3D CPU + M/B with A3D Sound
300 $299 333 $319
350 $349 400 $479

Pentium II celeron & M/B+8mAGP+Sound
300A$319 333 $369
366 $469 400 $569

Best Value Celeron 300A+Abit BH6 M/B $379

Memory

72 pin non EDO
16m $79 32m $179

72 pin EDO RAM
16 m $69 32m $149

168 pin SDRAM
32m $99 64m $199

100 mhz SDRAM
64m $199 128m$379

Hard Disk

Seagate/ Fujitsu IDE
3.2g $249 4.3g $279
6.4g $319 8.6g $379
10.2g $449

Seagate Medalist Pro 7200 rpm IDE
6.5g $449 9.1g $499

Medalist Pro SCSI
4.3g $469 6.5g $649
9.1g $849

Seagate Barracuda U2/W SCSI 80m/sec
4.5g$799 9.1g$949
18.2g $1699

Seagate Cheeth u2/w SCSI 80mb/sec
4.5g$1199 18g$2499

Maxtor 7200 rpm
7.5g $479 10.2g $549

Quantum F/Ball IDE
3.2g $249 6.4g $299
7.6g $349 8.4g $379
10.g $429 12g $499

Quantum Bigfoot
6g $299 8g $349
12g $459

Quantum Ultra SCSI
6.4g $799 8.4g $999

Quantum Viking II
4.5g $529 9.1g $799

Quantum Atlas u2/w
9.1g$899 18.2g$1769

IBM U/w &u2/w SCSI
4.5g $499 9.1g $799
18g 1000rpm $1699

Motherboard

Abit BH6 $219

Aopen AX6BC $229
Aopen AX6B $259
Aopen AX59pro $175

ASUS BX $299
ASUS BX +U/W $589

Gigabyte BXC $225
Gigabyte BXE $249
Gigabyte BX with U/W Adaptec SCSI $479
Gigabyte 5AX $169

SuperMicro
SBA 440BX $279
SBS U/W SCSI$559
DBS 2xCPU $699
DGE U2/W $599
DGS 2CPU $849

CD ROM

32x $85 36x $89
40x $109 48x $169
SONY 24xSCSI $199
P/sonic24xSCSI $179
Pioneer32xSCSI$249
NEC 36x SCSI $249

CD Writer

Kodak 8x4 IDE $499
SCSI
Panasonic 8x4 $649
SONY 8x4 $699
Blank CD
Kodak,TDK,Ricoh $3

Rewritable CD

Acer6x2 IDE $599
Ricoh6x2 SCSI $699
Ricoh20x4IDE $749
SONY24x4IDE $799
Blank CD $25

DVD kit

Creative 2xDVD $399
Creative 5xDVD $629
SONY 5xDVD $699
Hitachi DVD RAM $2199

Sound Card

Audio Excel 16bit$29
Audio Excel PCI $39
Diamond Sonic
Impact s90 $79
Yamaha 192XG $199
Creative SB16 $55
Creative PCI32 $59
CreativeAWE64 $99
Creative PCI64 $99
Creative PCI128$149
AWE 64 Gold $299
Sound Blaster Live Full Retail Pack $449

SB Live Value$219

Video Graphics

S3 Virge PCI 2m $39
S3 Virge PCI 4m $49
S3 Tro AGP 4m $49
S3 Savage 8m $149
Trident AGP 4m $49
Intel I740AGP8m $99
Aopen 8m SISagp$99
Aopen 8m Intel $109
Diamond Stealth
Speed Start 4m $99
Speed Start 8m$119
G460 I740 8m $169
Fire1000 agp $369
Fire1000 pci $309
Viper330 agp $179
Viper330 pci $189
Viper550 8m $179
Viper550 16m $249
Monster VooDoo II
8m Retail $299
12m Retail $319
Fusion 16m $319
Creative VooDoo II
8m Retail Box $299
16m Banshee $279
Creative TNT $249
ViewTop
12m 3D/FX 2 $249

16m Riva TNT $249

Leadtek 16m nVIDIA RIVA TNT
OEM Pack $249
Retail Box $299
Matrox
Mystique G200 $249
Millennium G200$249
Marval G200 8m AGP
Capture/Editing $519

Printers

Canon
BJC255 $149
BJC4310 $229
BJC4650 A3 $449
BJC7100 $499
BJC5000 $499
BJC5500 A2 $1399
HP 670 $209
HP 695 $259
HP 710 $329
EPSON 440 $239
EPSON 640 $299
EPSON 740 $499
EPSON 700 $419

Monitor

LEO17" 0.28 $469
Acer17" 76c.27 $569
Acer17" 79g .25 $939
Acer 19" $1399
Hansol19" $999
Daewoo17" $599
LG17" 77I .28 $569
Mitsubishi
DiamondView.28$569
DiamondPlus.25 $699
Panasonic
17" E70 $679
19" SL90 $1349
Sony
15" 100ES $549
17" 200ES $999
17" 200GS $1299
19"400PS $1999

Modem

Banksia
MyModem V90 $179
Wave SP 56k $229
Wave SP V90 $249
PC Card56 $219
Combo Card 56 $299
336 GSM Card $199
Netcomm
InModem 56k $149
Roaster II Ultra $219
RoasterII 56USB$299
CardModem56 $339
GlobalCard 56 & GSM $429
CardModem56Combo
Ethernet 10B-T $399
US-Robotics
56k Internal $225
56k External $239
Hayes
Accura 56 Int. $229
Accura 56 Ext. $249
Accura56SVD In$269
Accura56SVDEx$299
Optima 56kGSM$569
Web Excel
Inteinal 56 V90 $99
External 56k $129

Scanner

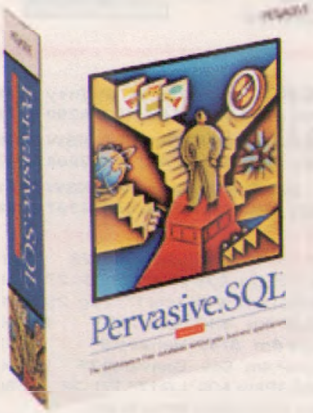
Artec AS6E $149
Canon FB320 $199
Canon FB620 $269
Acer 310 SCSI $199
Acer 610 SCSI $299
Acer620 Tancy $399
HP 4100c $345
HP 5100c $449
HP 6200c $749
HP 6250c $949

NEW

Pervasive.SQL

Btrieve 7, Scalable SQL 4, and ODBC all in the one box!

A single database engine with lightning-fast, high-volume transactional processing and powerful industry-standard SQL capabilities.



- The first and only embedded database to deliver simultaneous Relational and Transactional Access from a shared engine.
- A true 'plug and play' client/server solution.
- Smart Component Technology and Automatic Network Testing
- 64GB file capacity for building larger databases
- TCP/IP support for both NetWare and Win NT including DOS sessions
- Stackable user counts
- Fully backward compatible to v4.x

Run your app's up to 20 times faster without modification!

- ✓ AccPac
- ✓ Scala
- ✓ Great Plains Dynamic
- ✓ HiPortfolio
- ✓ Platinum
- ✓ Impart
- ✓ Macola
- ✓ ArcServe
- ✓ Maximiser
- ✓ Tracker
- ✓ RealWorld
- ✓ RecFind
- ✓ Solomon
- ✓ Pronto
- ✓ KCS Funds Manager
- ... and more

Ideal to use with these RAD tools - DataFlex PowerFlex Clarion Magic

Call FMS (03) 9699 9899, email btrieve@btrieve.com.au for your eval. copy.

MicroStructure Pty Ltd. **Unit 15/1 Adept Lane Bankstown NSW 2200**

MicroStructure

3.2/4.3G Fujitsu UDMA 238/244
6.4/8.4/10G Fujitsu DMA 290/345/394
4.3/6.4G Seagate UDMA.....244/290
6.4G Quantum UDMA 308
8.4/12G Quantum UDMA ...365/521

4.3/9.1G IBM UW 495/904
9.1G Quantum UW 8ms.....970
9.1G Seagate Barracuda.....904
9.1G Seagate Cheetah.....1492

Fast SCSI PCI 80
Adeptec 2904 PCI OEM.....122
Adeptec 2904 UW PCI OEM.....343

Compro Panasonic 8R4W SCSI ..600
Sony 8R4W SCSI Bare Drv.....518
Compro Panasonic 8R4w IDE.....598
Ricoh MP7040a 20x4x4 RW IDE.823
Ricoh MP6200S 6x2x2 RW SCSI.681
Mitsubishi 6R2W 8x2x2 IDE RW..571
Kodak 8R4WKits IDE.....536

1.44Mb Mitsubishi Drv.....40
120Mb Mitsubishi Drv Internal.....155
LS-120Mb Drv External.....255

100Mb Parallel Port.....242
100Mb IDE Drive Int 171
1Gb Jaz SCSI Int 468
2Gb SCSI Int / Ext 783
100Mb/1Gb(3 Pack)Cartridge 25/283
2.0GB Cartridge 211

Exabyte 4.4G TR-3 Removable..381
Exabyte 4.4G TR-3 Int.....284
Exabyte Controller for TR-3.....95
Exabyte 4-8G TR-4 Int.....671
Verba TR-3 2.2G-4.4G Tape.....60
Verba TR-4 .4G Tape 60

Sony Dat 2G Int SCSI 1162
Sony Dat 4G Int SCSI 1492
External case for Sony 350
Sony 4mm 90M 2G Tape.....73
Sony 4mm 120M 4G Tape.....131
Wangdat 3100 2G SCSI Int 1122
Wangdat 3800 4-8G SCSI Int 1611
Wangdat 3900 12-24G SCSI Int 2284
Wangdat 120M 4-8G Tape.....195
External case for Wangdat drive 304
Sony Cleaning Tape for DDS1.....66

40 Creative INF6000 120
24 Panasonic SCSI 175
40 Misubishi 104
Yamaha 3D PCI SoundCard.....40
PCI 3D Sound 35
Sound Blaster Live Value OEM....187
Sound Blaster 128 Bit PCI OEM ..130
Sound Blaster AWE64 Gold Ret...310
Creative Ensoniq PCI 32 60
Creative DVD Kit 487

NE2000 Compatible ISA/PCI ..30/30
PCI 32bit 100 MBS 45
8 /16/ 24 Port Hub.....108 /254/445

2M / 4 M S3 Virge/DX PCI 45/65
4M S3 Trio 3D AGP 65
8M Matrox Mystique G200 AGP....210
8M Matrox Millen II G200 AGP....206
Matrox Rainbow Studio G-Series 382
16M Matrox Vedio Capture AGP..538
12M APAC Voodoo II 3D PC.....250
16MCreativeVodooBanshee AGP.276
8M Excel Intel Chip set 740 AGP...95
Matrox Rainbow Studio Mellie.....572
16M Diamond 3D V550 AGP.....310
16M Diamond 3D V550 PCI.....363
4M Diamond 3D V330 AGP.....152
8M Diamond Fire GL1000 AGP...349
8 /12M Diamond Monster II...305/344
16MDiamonVoodoBanshee AGP 280
16M DiamonVoodoBanshee PCI 348
512K EDO RAM 35ns 5

APEC Pentium ALI Chipset AT...137
DFI Pentium II BX440 ATX 202
Gigabyte GA-586AX ATX 148
Gigabyte GA-5AA512 AT.....148
Gigabyte GA-6BA 440BX AT.....223
Gigabyte GA-6BXC ATX.....210
Gigabyte GA-6BXS 461
Gigabyte GA-6BXDS.....580

Intel Celeron300A/333A 150/180
Intel Celeron 366A/400A .. 225/308
IBM M2-300/333MX.....104/127
Pentium II 350/400.....406/616
Pentium II 450.....887
AMD K6 II 3D 300/350MMX..122/200
AMD K6 II 3D 400MMX.....300

1/ 4Mb 30 pin.....7/31
8 /16 /32Mb 72p Stdt.....57/81/156
8/16/32Mb Parity.....64/100/197
8/16/32Mb EDO 44/73/138
32Mb SDRAM PC66 85
32MB SDRAM PC100.....85
64/128Mb SDRAM PC100 ..175/356

15" Hansol 500A.....317
15" Samsung Synmaster 500S .356
17" Hansol 701A/700P 548/698
15"/17" Samtron 317/574
15"/17" Mitsubishi 299/552
17" Samsung700S/B/P 680/851/1089
17" Goldstar 77i / 7D 594/812
15" Sony100 ES.....527
15" NEC V500.....353
17" Sony 200ES/GS.....870/1205
17" NEC V700/E700.....730/1080
17" Sony 200 PS.....1575
19" Sony 400 PS.....1974
21" Sony 500 PS.....2370
21" NEC 1100/P1150.....2370/3287

Netcom PCMCIA 56K.....262
Banksia PCMCIA 56K 250
Banksia PCMCIA 56K & RJ45 ...353

Banksia SP 56K OEM 216
Banksia SP 56K Retail 237
Xicom 56k PCMCIA.....294
Mitsubishi 56K V90 Voice Int 105
Mitsubishi 56K V90 Voice Ext 140
Netcom 56K Roadster II Retail....288
Netcom 56K Roadster II OEM....206
Xicom 56K with Ethernet RJ45...525
Dynalink 56K Voice Int 151
Dynalink 56k Voice Ext 163
Xircom 56K PCMCIA Ethernet ...608
US Robotics Sportster 56K 221
Netcom 56K PCMCIA & RJ45 ...365

Satellite 4000CDS PII 233MMX 3315
Satellite 4000CDT PII 233MMX 4056
Satellite 4910CDT PII 266MMX 4446
Portege 3010CT P 266MMX ... 4225
Portege 7010CT P II 300MMX ..6656
Libretto 100CT PI 166MMX.....3055
Tecra 8000 PII 266MMX.....6435
Tecra 8000 PII 300MMX.....6656
Tecra 750DVD P 233MMX 7093

HP 4100/5100/6200C...295/456/730
HP 6250C / Photo Shop 909/824
Canon FB320 / FB620.....179/261
Canon CS300/CS600 390/697
Artec 1236P/AT6/AT12..160/200/316

Epson LX300/LQ300.....241/373
Epson LQ570+/LQ870 598/897
Epson LQ2070 830
Stylus 440/640/700 241/306/411
Stylus 740/850 491/659
Epson Stylus Photo Ex.....736
Epson 1520/3000 A2 Size1728/3133
HP 692C.....248
HP 695C.....266
HP 710C/890C.....325/755
HP 1120C A3 Size 848
HP 1600C.....2265
HP 1600CM.....3295

HP 6P.....1197
HP 6MP.....1429
HP Colour LaserJet 5/5M 5395/7085
HP LaserJet 4000/T 2266/2769
HP LaserJet 4000N/TN ...2717/3164
HP LJet 5000/N/GN..3062/4121/5265
HP LJet 8000/N/DN..4771/5294/6153
HP OfficeJet Laser 3100 1411
HP OfficeJet 710C/1170C..918/1429
HP OfficeJet 1175C.....1797
BJC 50/255.....580/141
BJC 4310.....209
BJC 4650 A3 Size Colour.....402
BJC 5500 A2 Size 1233
BJC 7100 497
Canon LBP 660 Laser 498
BJC 880 A3 4M 4750
Canon C30 Multifunction printer.900

IBM-300/333MX 1684/1708
AMDk6 II 300MMX 3D.....1731
AMDK6 II 333.MMX 3D.....1731
AMDK6 II 350 MMX 3D.....1777
AMDK6 II 400 MMX 3D.....1942
Celeron 300A/333A.....1849/1880
Celeron 366A/400A.....1935/2026
Pentium II 350/400.....2115/2335
Pentium II 450.....2619

All System Include:
64MbRam, 4.3Gb HDD, 1.44 FDD, 15" Monitor 4Mb AGP S3 Trio643D MiniCase, Win95 K/B Mouse, 32xCDRom, AWE64, 480 W Speaker, Window 98 CD, 2 Years On Site Warranty

(Price include parts, exclude CRT & EHT) 14/15 in $100, 17/19 in $200

Price Subject to Change Without Prior Notice. All Price Include Sale Tax. Payment COD. Trading hours: Monday– Friday 9:00am 5:30pm Saturday 9:30am 2:00pm
http://WWW.Microstructure.com.au

intel inside pentium II · Canon · EPSON · HEWLETT PACKARD

Ph: [02] 9790 4109 Fax: [02] 9709 5349

ARE YOU EARNING $1,200 A WEEK WITH YOUR COMPUTER?

If not you should be reading "The Instant Publisher" newsletter.
750 books, reports and manuals you can reprint and sell.
Get all 750 on a CD-ROM.

CALL FOR FREE INFORMATION
1800 651 478

EVEN BETTER!

Telephony & Computer Headset Specialists
Speech Recognition • Internet Telephony • Interactive Gaming
For more information on our complete range of products visit our Website at: www.telset.com.au

Telset Technologies
Australian & New Zealand Distributor
FREECALL IN AUSTRALIA
1800 653 424
FREECALL IN NEW ZEALAND
0800 835 738

Andrea



ANC 600

Give your
Computer
a new life.

All kinds of HDD & CPU upgrades available.
For all major brands. All major models.
Check us out.

Performance Memory & Peripherals
Tel (02) 9906 4533 Fax: (02) 9906 1871
Suite 1, 109 Alexander St, Crows Nest, NSW 2065
www.performancememory.com.au

Easy INKJET CARTRIDGE REFILLS Easy

Cut your inkjet printing costs by up to 80%

BLACK KITS FROM $25.90 **COLOUR KITS FROM $35.90**

PRINTER (MANY MORE KITS NOT LISTED)	BLACK	REFILLS	COLOUR	REFILLS
HP DeskJet 400	K2BK	6	K9CLR	1 2
HP DeskJet 500C, 500J, 510, 520, 530, 540, 550, 560	KIBK	6	K9CLR	1 2
HP DeskJet 600/660/690/692/694 series	K2BK	6	K10CLR	1 2
HP DeskJet 600/660/690/692/694 series photo	K2BK	6	K14CLR photo	1 2
HP DeskJet 850C/855C/870C	K3BK	6	K11CLR	6
HP 1600	K5BK	6	K12CLR	6
HP DeskJet 720, 722, 890, 893	K3BK	6	K22CLR	6
HP Desk Jet /DeskWriter/Portable/Design Jet/300	K1BK	6	K9CLR	1 2
HP Desk Jet 1200	K5BK	6	K12CLR	3
HP PHOTO SMART			K25CLR	6
Canon BJ-30 / BJC-70 / BJC-80	K7BK	6 0	K1CLR	3 0
Canon BC-01/02 BJ-10E/20/BJ-200/BJC-210	K8BK	6	K2CLR	6
Canon BC-03	K4BK	8	K2CLR	6
Canon BC-06 photo			K23CLR	6
Canon BJ-300/330	K9BK	7	K4CLR	4
Canon BJC-600/610/620	K10BK	1 2	K3CLR	1 2
Canon BJC-800/820/880	K11BK	8	K4CLR	1 2
Canon BJC-4000/4100/4200/4550 BC-20 & BC-21	K12BK	5 0	K5CLR	3 0
Canon BJC-4200 photo BC-22e			K18CLR	6
Canon Flourescent BC-29F			K21CLR	6
Canon BJC 7000 With 60ml black & 60ml clear +photo	K19BK	2	K15CLR	6
Canon BJC 7000 colour BCI-61			K24CLR	6
Epson stylus color 800/1520	K13BK	1 2	K20CLR	6
Epson stylus color 820	K16BK	8	K7CLR	1 2
Epson Stylus 400/800/800+/1000	K14BK	1 2	K6CLR	6
Epson Stylus Color / Pro/ XL	K15BK	1 2	K6CLR	6
Epson Stylus 200 / Color 11/11S	K16BK	1 2	K7CLR	1 2
Epson Stylus Color 400/600 (440 / 640 / 740 NEW)	K17BK	1 2	K20CLR	6
Epson Stylus Color 500	K17BK	1 2	K7CLR	6
Epson stylus color 3000	K21BK	3	K22CLR	1 X 3
Epson Stylus Photo/Photo EX/ 700 Photo	K17BK	1 2	K17CLR	1 2
Lexmark / IBM 4076/1020/2030/2050/2070/1000	K18BK	6	K13CLR	1 2
Lexmark / IBM 2030/2050 WATER PROOF	K24BK	6		
Lexmark / IBM 2030/2050 PHOTO			K29CLR	1 2
Lexmark 5700	K25BK	6	K30CLR	1 2
Olivetti JP150/250/350/360/450	K20BK	6	K19CLR	1 2

RE-SELLERS WANTED
BUY DIRECT FROM THE MANUFACTURER
PH. 07 3824 7800

Up to 60 refills per kit



Do not be fooled by advertiser that offer fake ½ price speacials

We have changed our name from RECOJET TO Easy - REFILLS

We have the latest WATER FAST inks as well as the finest PHOTO and NEON inks all vibrant deep and rich in colour that in many cases exceed the manufacturer's specifications. Manufactured by one of America's leading Corporations. And no your PRINTER WARRANT is NOT VOID if you use our inks

We have generic cartridges up to 50% cheaper than originals
We have the best quality photo papers and quaranted cheaper than anyone else. TRY US !!!!!!!

GET YOUR FREE CARTRIDGE

FREE - CALL
1800 809 047

2 Iona Court, Alexandra Hills, Queensland 4161
OPEN SATURDAY 8AM - 4PM

PH. 07 3824 7800
FAX 07 3824 7799

Email : recojet@powerup.com.au
Buy three kits and get a NEW cartridge or a free kit, while stocks last. Conditions apply

FREE AUSTRALIA WIDE DELIVERY
CHEQUE C.O.D.

Easy - REFILLS
P.O. BOX 1042.
CAPALABA,
QUEENSLAND 4157

Why call

the whole market

to get a good price?

Just call us. For memory, CPU's, HDDs and peripherals. At the most competitive prices. Just one call away.

Performance Memory & Peripherals

Tel (02) 9906 4533 Fax: (02) 9906 1871
Suite 1, 109 Alexander St, Crows Nest, NSW 2065
www.performancememory.com.au

GOOD!

Telephony & Computer Headset Specialists

Speech Recognition • Internet Telephony • Interactive Gaming

For more information on our complete range of products visit our Website at: www.telset.com.au

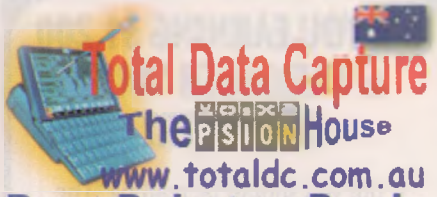
Telset. Technologies
Australian & New Zealand Distributor

FREECALL IN AUSTRALIA
1800 653 424
FREECALL IN NEW ZEALAND
0800 835 738

Andrea



NC 50



Total Data Capture
The PSION House
www.totaldc.com.au

Best Palmtop Deals

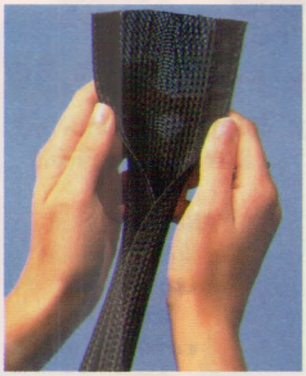


$699 SERIES 3mx

BONUS: PC Link (Value $99)

2Mb RAM, 480X160 Backlight Screen, 340 grams, 2xAA Batteries last 2 months, Psion Office Suite, Ir-link, & Voice Record

Flexo-Wrap Computer Cable tidy kits are



- Affordable
- Expandable
- Flexible
- Re-Usable
- 2, 5, 10 metre cable paks available
- Customise lengths available
- Organise & protect cables
- Ideal for Networks
- Specialists in cable management
- Visit my website
- Dealers welcome



TECHFLEX AUSTRALIA

Tel: (02) 9709 2445 Fax: (02) 9793 7350
www.techflex.atu.com.au



$1099 SERIES 5

$99 BONUS: Power Supply, 5Mb Extra Software, Batteries, Shipping

8Mb RAM, 640x240 Touch Screen, 360 grams
Touch Type Keyboard, 2xAA Batteries a month
Psion Office Suite, Internet, E-mail, Fax, Ir-link,
PC Win95/98/NT Link, Voice Record, Backlight

SHARP $1499



Save CE Colour Palmtop $100 HC-4600

Guaranteed Best Price Australia wide

Sales@totaldc.com.au
1800 800 772

MEMORY ★ MEMORY ★ MEMORY

SIMMS	PARITY	NO PARITY
4Mb 30pin - 60ns	$40	$37
8Mb 72pin - 60ns	$62	$41
16Mb 72pin - 60ns	$98	$83
32Mb 72pin - 60ns	$217	$177
64Mb 72pin - 60ns	$435	$333
EDO SIMMS 72pin 60ns		
4Mb / 8Mb	$14	$28
16Mb / 32Mb	$73	$141
64Mb / 128Mb	$295	$587
DIMMS 168pin 60ns FPM (APPLE)		
16Mb / 32Mb		$159
64Mb / 6128Mb	$338	$719
SDRAM 168pin		
32Mb 64Mb	$87	$189
128Mb /256Mb	$393	$1,086
TOSHIBA LAPTOPS/NOTEBOOKS		
16Mb Tecra 500/650 Satellite etc.		$131
16Mb Libretto 50CT		$134
NEC VERSA		
16Mb Versa E, M, P & V Series		$153
32Mb Versa, E, M, P & V Series		$260

LIFETIME WARRANTY

IBM	
16Mb ThinkPad 365/380/560/760E, XD, XL etc.	$118
8Mb IBM PS/1, VALUE POINT	$80
HEWLETT PACKARD	
8Mb Laserjet 4, 5, 6P/MP	$45
4Mb Laserjet 5L, 6L	$83
16Mb Omnibook 800	$142
FLASH CARDS (PDA, CAMERA memory)	
8Mb Compact Flash	$126
16Mb Compact Flash	$177
32Mb Compact Flash	$279

We carry over 600 different modules for all makes including ACER AST CANON APPLE NEC ZENITH SUN & SILICON GRAPHICS.

Prices exclude sales tax.
Sales Tax = 22%
Overnight delivery $10. Credit cards welcome.
Prices subject to change. Prices valid as at 18/2/99

PELHAM Pty Ltd

PH: (02) 9980 6988 FAX: (02) 9980 6991
E-mail: pelham1@ozemail.com.au
1/100 Yarrara Rd,
Pennant Hills, NSW 2120

Are you a software guru with the nucleus of a great product?

One of Australia's most successful software companies can help you transform your software passion into commercial reality.

We can provide funding, commercial software development savvy and a proven track record in taking software technology to market around the world.

If you are ready to take that first step call our Development Director on (02) 9439 5800 or e-mail iand@ozemail.com.au

ALTIMA Notebook Computers

(Notebooks/PDAs)

* Altima Gazelle-12 PII 233MHz, 3.2GB HDD, 12.1In TFT, 32MB SDRAM, 2xDVD-ROM. 1 year int. warranty $3350
- Toshiba Tecra 8000 PII 233MHz, 12.1 DSTN Screen, 3 year int. warranty $3095.
- Toshiba Satellite 4010CDT, PII 266, 12.1" TFT, 1 year int. warranty $3750.
- Palm III PDA $620 (RRP $690).

Toshiba, Compaq, IBM Notebooks at great prices. Full range of PDAs/Palmtops. Please call or visit our web site for best quotes.
LCD monitors: power and space savings. NEC, Samsung, Philips.
(Finance Available: Flexirent: The Modern Way to Pay for Technology)

(Full Range of CD-Recorders/Writers)

Panasonic 8R/4W SCSI Kit, $550. Drive only $470.
Plextor 20x8 CD-Recorder $1050.
For Yamaha, Sony, Ricoh, Teac, JVC just call or visit the Altima internet shop.

(Smart+Friendly CD-R/RW Kits (APC's Editor's choice Sept.98)

PC/MAC

Full range of Smart & Friendly CD-Recorders and Duplicators.

(Other Products)

DVD-ROM, DVD-RAM Solutions.
MPEG Video Capture and VideoCD productions system from $1050.
Internal Iomega IDE Zip drive with 1 Zip media: $175.
PCMCIA and Compact Flash Cards solutions for Notebooks/PDAs/Digital Camers.
All major credit cards accepted. Free delivery Australia-wide for any order above $500.

(Online Prices/Ordering: www.altimaco.com.au)

For more info about any products please call or visit the Altima Internet shop.



Connect to your Office Network from Home

EASILY... **$2,999 RRP**
ex tax 4 Ports

* **FREE** 24 hour/7 Days a week hotline.
* **FREE** Software Upgrades.

PERLE

Open Systems Pty. Ltd.

Y2K COMPLIANT

FREE 1/24 HOTLINE

Contact Open Systems Pty Ltd for more information on the Perle 833 Remote Access Server

Tel: (02) 6261 4900 Fax: (02) 6257 9800 Email: info@opensystems.com.au Internet: www.opensystems.com.au

WE MANUFACTURE QUALITY

RITE PRICE COMPUTERS PTY LTD

PO BOX 539 OR 13 BILLSON ST, WONTHAGGI VIC 3995
PHONE (03) 5672 4887 OR FAX (03) 5672 4410 A.C.N. 072 721 192

MOTHERBOARDS 66-100Mhz SOCKET 7 — Sell
PENTIUM MB KTX 83Mhz SOCKET 7 MMX ..98
PENTIUM TX PROII MB W/SOUND AT 100Mhz ..125
PENTIUM EPOX APOLLO MVP3C-M 100Mhz ..148
PENTIUM EPOX APOLLO ATX 1MB MVP3E ..168

PENTIUM II MOTHERBOARD AT-X / L-BX
PENTIUM II MB PC100 BX PRO WITH AGP V/S ..172
PENTIUM II MB GIGABYTE BXC AGP 100Mhz ..221
PENTIUM II MB ABIT BH-6 AGP 100Mhz ..221
PENTIUM II MB AOPEN AX6BC BX AGP 100 ..235
PENTIUM II MB EPOX 61-BXA AGP 100MHZ ..219
PPGA CONVERTER TO SLOT 1 MODULE ..25

CPU'S - PENTIUM II - PENTIUM III
CYRIX/IBM 686M2-266 CPU M2 - MMX CPU ..82
CYRIX/IBM 686M2-300 CPU M2 - MMX CPU ..87
CYRIX/IBM 686M2-333 CPU M2 - MMX CPU ..104
AMD K6 II P-300 3D CPU WITH MMX TECH ..124
AMD K6 II P-350 3D CPU WITH MMX TECH ..201
AMD K6 II P-400 3D CPU WITH MMX TECH ..316
AMD K6 II P-450 3D CPU WITH MMX TECH ..CALL
PENTIUM MMX 233 SOCKET 7 CPU - LIMITED ..210
CELERON 333A Mhz PPGA CPU INTEL IN BOX ..165
CELERON 366A Mhz PPGA CPU INTEL IN BOX ..212
CELERON 400A Mhz PPGA CPU INTEL IN BOX ..302
CELERON 333A Mhz MMX CPU INTEL IN BOX ..167
CELERON 366A Mhz MMX CPU INTEL IN BOX ..239
CELERON 400A Mhz MMX CPU INTEL IN BOX ..318
PENTIUM II 350Mhz MMX CPU INTEL IN BOX ..463
PENTIUM II 400Mhz MMX CPU INTEL IN BOX ..770
PENTIUM II 450Mhz MMX CPU INTEL IN BOX ..1,157
PENTIUM III 450Mhz MMX CPU INTEL ..1,142
PENTIUM III 500Mhz MMX CPU INTEL ..1,610

HARD DISK DRIVES 3.2 GIG - 14.4 GIG
3.2 GIG MAXTOR/QUANTUM ULTRA HD DRIVE ..230
3.2 GIG SAMSUNG ULTRA DMA HD DRIVE ..219
3.2 GIG WESTERN DIGITAL ULTRA HD DRIVE ..230
4.3 GIG SAMSUNG/FUJITSU U/DMA HD DRIVE ..235
4.3 GIG WESTERN DIGITAL ULTRA DMA HD ..247
4.3 GIG IBM ULTRA DMA HARD DISK DRIVE ..290
5.1 GIG QUANTUM EL ULTRA ATA HD DRIVE ..299
6.4 GIG SAMSUNG ULTRA DMA HD DRIVE ..276
6.4 GIG FUJITSU ULTRA DMA HD DRIVE ..304
6.4 GIG WESTERN DIGITAL ULTRA ATA HD ..283
6.4 GIG IBM ULTRA DMA HARD DISK DRIVE ..311
6.4 GIG QUANTUM EX ULTRA ATA HD DRIVE ..287
8.4 GIG SAMSUNG ULTRA DMA HD DRIVE ..314
8.4 GIG IBM ULTRA DMA HARD DISK DRIVE ..336
8.4 GIG WESTERN DIGITAL ULTRA ATA-66 ..316
10.2 GIG WESTERN DIGITAL ULTRA ATA-66 ..374
10.2 GIG QUANTUM EL ULTRA ATA HD DRIVE ..417
10.1 GIG IBM ULTRA DMA HARD DISK DRIVE ..371
13.3 WESTERN DIGITAL ULTRA ATA-66 ..463

VIDEO/CAPTURE CARDS - S3 - TRIDENT
S3 TRIO64V+ 64B PCI 1MB (UPG. TO 2MB) ..49
4MB EDO VIRGE 3D S3 PCI VIDEO CARD ..54
4MB EDO TRIDENT AGP VIDEO CARD ..60
VIDEO 78AGP NVIDIA RIVA 128ZX AGP 8MB ..94
BLAZE 3D ULTIMATE PCI W/TV OUT/TV TUNER ..235
VIDEO/CAPTURE CARDS-DIAMOND-MATROX ..Sell
3DeMON VOODOO BANSHEE 2/3D 16MB CARD ..227
KTX VOODOO2 3D 12 MB ADD-ON CARD ..219
CREATIVE BANSHEE 16 MEG RETAIL ..265
CREATIVE BLASTER 12 MEG VOODOO II RET ..318
DIAMOND STEALTH SPEEDSTAR 8MB OEM AGP ..100
DIAMOND STEALTH II S220 4MB RETAIL PCI ..139
DIAMOND MONSTER FUSION 16 MEG AGP OEM ..261
DIAMOND MONSTER FUSION 16 MEG AGP/PCI ..281
D/STEALTH VIPER - 550 PCI/AGP 16MB RETAIL ..331
D/STEALTH VIPER - 550 AGP 16MB OEM ..293
D/STEALTH MONSTER II 3D 12 MEG NO S.W. ..CALL
D/STEALTH II G460 2D/3D AGP 8MB I740 OEM ..145
D/STEALTH II G460 2D/3D AGP 8MB I740 RETAIL ..196
AGP INTEL I740 8MB SDRAM CARD ..107
MATROX MARVEL G-200 VIDEO CAPTURE/EDIT ..516
MATROX MYSTIQUE G200 8MB AGP TV OUT OEM ..208
MATROX MILLENIUM G200 8MB AGP RETAIL ..252
MATROX MILLENIUM G200 8MB AGP OEM ..208
MATROX MILLENIUM G200 SDRAM 8MB PCI ..226
MATROX MILLENIUM G200 SDRAM 8MB AGP OEM ..187
G-SERIES RAINBOW RUNNER STUDIO CAPTURE ..347
G-SERIES DVD UPGRADE MODULE ..142
MATROX M3D GAMES CARD NEC VR2 4MB ..86
ASUS RIVER TNT AGP-V3400TNT 16MB ..272
ASUS RIVER TNT AGP-V3400TNT/TV 16MB ..297

MEMMORY RAM 4MB 30P - 128MB 168P
30 PIN 4 MEG SIMM STD 60NS ..23
72 PIN 16 MEG SIMM STD 60NS ..72
72 PIN 32 MEG SIMM STD 60NS ..147
72 PIN 16 MEG EDO SIMM 50/60NS ..61
72 PIN 32 MEG EDO SIMM 50/60NS ..125
168 PIN SDRAM DIMM MODULE 32MB 10NS ..78
168 PIN SDRAM DIMM MODULE 64MB EPROM ..161
168 PIN SDRAM DIMM MODULE 64MB 100Mhz ..161
168 PIN SDRAM DIMM MODULE 128MB EPROM ..326
168 PIN SDRAM DIMM MODULE 128MB 100Mhz ..326
KODAK DC CAMERA FLASH RAM 10MB ..202

MONITORS 14" - 21"
14" NON-INT MONITOR L/R STD ..234
15" NON-INT MONITOR MPRII L/R STD ..259
15" NON-INT MONITOR MPRII L/R V/M ..266
15" MITSUBISHI DV1570I DIGITAL MPRII MON ..329
15" NON-INT MONITOR MPRII L/R MULTIMEDIA ..310
15" VIEWSONIC E655 DIGITAL MONITOR ..348
15" VIEWSONIC P655 DIGITAL MONITOR ..449
15" SONY N-I L/R CPD100ES DIGITAL MONITOR ..529
17" N-I DIGITAL MONITOR V/M STD 0.28P ..436
17" N-I L/R DIGITAL MONITOR 0.28P MULTIMEDIA ..525
17" V/M N-I MPRII DIGITAL 80KHZ .25 MON ..576
17" MITSUBISHI DV1772E DIGITAL MPRII MON ..544
17" MITSUBISHI DPLUS71 DIGITAL MPRII MON ..784
17" VIEWSONIC PS775 1600x1280 USB DIGITAL MON ..980
17" SONY N-I L/R CPD200ES DIGITAL MON ..936
17" SONY N-I L/R CPD200GS DIGITAL MON ..1,189
17" SONY N-I L/R GDM200PS DIGITAL MON ..1,632
19" V/M N-I L/R 0.26P DIGITAL MONITOR ..999
19" SONY N-I L/R GDM400PS DIGITAL MON ..1,973

KEYBOARDS 104 & MICE
WIN95 104 KEY STD BTC K/B ..25
HONEYWELL K/B GENUINE 104 ..68
MICROSOFT K/B NATURAL ELITE 98 ..78
MOUSE STD MS COMPATIBLE SERIAL ..10
MOUSE STD MS COMPATIBLE PS/2 ..15
MICROSOFT MOUSE GEN PS/2 SERIAL ..59
MICROSOFT MOUSE PS/2 GEN INTELLI ..59
HONEYWELL NO BALL MOUSE ..55
MOUSE PAD STANDARD ..3

PRINTERS HP- EPSON- CANON
HP 670 COLOR INK JET PRINTER A4 ..221
HP 695 COLOR INK JET PRINTER A4 ..249
HP 880C COLOR INK JET PRINTER A4 ..536
HP 895 CXI COLOR INK JET PRINTER ..758
HP 1120 C COLOR INK JET PRINTER A3 ..853
HP 1100 LASER PRINTER 8PPM A4 ..725
HP 1100A LASER PRINT/SCAN 8PPM A4 ..850
HP 2100 LASER PRINTER 10PPM A4 4MB ..1346
HP OFFICE JET 635C SCAN/COPY/PRINT ..736
HP OFFICE JET 1170C SCAN/COPY/PRI ..1365
HP OFFICE JET 1175C SCAN/COPY/PRI ..1732
EPSON STYLUS COLOR 300 720x360 ..152
EPSON STYLUS COLOR 440 720x720 ..228
EPSON STYLUS COLOR 640 1440x720 ..295
EPSON STYLUS COLOR 740 1440x720 ..484
EPSON COLOR PHOTO 700 1440x720 ..398
EPSON STYLUS COLOR 850 1440x720 ..645
EPSON STYLUS COLOR PHOTO EX ..731
EPSON STYLUS 1520 A3 COLOR A3 ..947
EPSON STYLUS 3000 A2 COLOR A2 ..3083
CANON BJC 50 A4 COLOR PRINTER PORT ..578
CANON BJC 80 A4 COLOR ..329
CANON BJC 80 SCANNER OPTION ..127
CANON BJC 255SP A4 COLOR ..132
CANON BJC 4310 SP A4 COLOR ..199
CANON BJC 4650 A3 COLOR ..415
CANON BJC 5000 A4 COLOR ..496
CANON BJC 7100 A4 COLOR NEW ..500
CANON BJC 5500 A2 COLOR ..1237
CANON LBP 660 LASER A4 6PPM ..496

SCANNERS STD - HP - CANON
KTX COLOR FLATBED SCANNER ..131
ARTEC COLOR FLATBED SCANNER ..127
HP 4100C FLATBED SCANNER NEW USB ..271
HP 5100C FLATBED SCANNER COLOR ..449
HP 6200C FLATBED SCANNER COLOR ..727
HP 6250C FLATBED SCANNER ..911
CANON FB320P COLOR SCANNER ..164
CANON FB620P COLOR SCANNER NEW ..247
CANOSCAN FLATBED CS300S COLOR ..247

CASES DESKTOP - FULL - AT - ATX
DESKTOP/MINI TOWER CASE W P/S CT ..60
MIDI TOWER CASE LED LCD W P/S CT ..75
ATX DESKTOP CASE DELUXE W P/S CT ..152
ATX MIDI TOWER CASE DELUXE CT ..94
ATX GALAXY MIDI CASE DELUXE CT ..164
ATX CASE EXTRA FAN COOLING ..19

MISC DRIVES - IOMEGA - LS120 - JAZZ
LS 120MB SUPER 120MB IDE DRV ..164
LS 120MB FLOPPY MEDIA ..18
IOMEGA ZIP DRIVE EXTERNAL PARALLEL ..241
IOMEGA ZIP DRV INTERNAL IDE 100MB ..164
IOMEGA 100MB ZIP DISKS EACH PC ..20
IOMEGA JAZZ DRV EXT. & INT. SCSI 2GIG ..830
IOMEGA JAZZ JET CARD INTERNAL ..190
IOMEGA JAZZ CART 1000MB 3 PACK ..500
IOMEGA JAZZ CART 2000MB 3 PACK ..569

MULTIMEDIA - CD 32 - 45 SPD
KIT SB16 & 32 SPD CD & S/W * STD ..221
KIT SB16 & 40 SPD CD & S/W * PIONEER ..245
KIT SB16 & 36 SPD CD & S/W * BOXED STD ..249
KIT SB16 & 32 SPD CD & S/W * SONY ..245
16 BIT SOUND CARD - AUDIO STD ..21
CREATIVE VIBRA 16 BIT S/C PNP ..52
CREATIVE SB AWE64 OEM PNP VALUE ..101
CREATIVE SB 64 PCI RETAIL PNP ..144
CREATIVE SB 64 PCI OEM PNP CARD ..78
CREATIVE SB 128 PCI RETAIL CARD ..187
CREATIVE SB 128 PCI OEM CARD ..115
CREATIVE SOUND BLASTER "LIVE" VALUE R ..259
CREATIVE SOUND BLASTER "LIVE" 256 R ..454
DIAMOND MONSTER SOUND MX300 PCI ..383
36 SPEED CD-ROM DRIVE STD ..83
36 SPEED CD-ROM DRIVE BOXED STD ..85
32 SPEED CD-ROM DRIVE SONY ..113
40 SPEED CD-ROM DRIVE PIONEER ..107
KODAK IDE WRITER KIT 8R4W S/W & CD'S ..469
SONY WRITER KIT 8R4W S/W & SCSI CARD ..604
SONY CD-RW 24R 4W 2RW KIT IDE 1MB ..594
PANASONIC 8R4W SCALA KIT WITH S/W SCSI ..581
PRINCO RE-WRITABLE MEDIA 74MIN ..10
CREATIVE DVD THIRD GENERATION KIT ..581
PIONEER 6xDVD KIT. CINEMASTER CARD & S/W ..409
STD 120 WATT SPEAKERS 240V ..20
JAZZ 3D SPEAKERS 28Watt RMS 240V ..99
COMPRO 380 WATT 240V SPEAKERS ..68
CANON PSA5 DIGITAL CAMERA ..1118
SONY MVC-FD51 DIGITAL CAMERA ..1016
SONY MVC-FD71 ZOOM DIG CAMERA ..1416
KODAK DC-210 PLUS DIGITAL CAMERA ..978
KODAK DC-220 DIGITAL CAMERA ..1459
KODAK DC-260 DIGITAL CAMERA ..1814
USB CONTROLLER CARD 2 x USB PORTS ..47
4-PORT USB HUB WITH POWER ..107
* KITS INCLUDE: Encarta 99, Works 4.5, Golf 98, Creative Writer 2, & Sampler.

MODEMS 56.6 STD - 56.6 HIGH END
56.6 INTERNAL VOICE/FAX/DATA PCI STD ..85
56.6 INT VOICE/FAX/DATA PCI DYNALINK ..87
56.6 INT VOICE/FAX/DATA ISA DYNALINK ..109
56.6 EXTERNAL VOICE/FAX/DATA STD ..109
56.6 EXTERNAL VOICE/FAX/DATA DYNALINK ..126
US ROBOTICS SPORSTER VOICE 56 V.90 ..221
NETCOMM 56K FAX/SVD ULTRA II V.90 ..252
BANKSIA WAVE 56.6K MODEM SP56 V.90 ..226

OTHER - FAN - WIN98 - FLOPPY
6x86-P???/ AMD K6 FAN HEAVY DUTY ..15
CASE AIR CONDITIONING EXHAUST FAN ..47
DISKETTE BOXES 3.5" OR 5.25" ..12
3.5" DISKETTES BOX OF 10 PCS ..5
BLANK CD'S FROM - KODAK 74 ..2.42
BLANK CD'S FROM - MITSUMI/KTX 74 ..2.21
BLANK CD'S FROM - PRINCO 80 MIN ..4.70
WINDOWS 98 NEW WITH PC OEM ..160
STD JOYSTICK/GAME PAD 4BUTTON ..30
STD JOYSTICK ANALOGUE ..35
MICROSOFT SIDEWINDER STD JOY ..87
MICROSOFT SIDEWINDER PREC PRO ..136
MICRO/S SIDEWINDER FORCE FB JSTICK ..295
MICRO/S SIDEWINDER FORCE FB WHEEL ..376
NE2000 COM. PCI/ISA COMBO CARD ..40
ETHERNET 100MPS COM. PCI CARD ..54
FLOPPY 3.5" 1.44MB STD ..34
FLOPPY 3.5" 1.44MB PANASONIC ..35
16 BIT I/O 16550 UART CONTROLLER ..47

SYSTEMS K6 - MMX - PENTIUM II
CYRIX/IBM M2 P-266 MMX 32MB ..1011
CYRIX/IBM M2 P-300 MMX 32MB ..1015
CYRIX/IBM M2 P-333 MMX 32MB ..1030
AMD K6 II P-300 3D MMX 32MB ..1050
AMD K6 II P-350 3D MMX 32MB ..1119
AMD K6 II P-400 3D MMX 32MB ..1223
AMD K6 II P-450 3D MMX 32MB ..CALL
INTEL PENITUM MMX 233 32MB ..1127
INTEL CELERON 300A 32SD MMX ATX ..1129
INTEL CELERON 333A 32SD MMX ATX ..1128
INTEL CELERON 366A 32MB MMX ATX ..1186
INTEL CELERON 400A 32MB MMX ATX ..1255
PENTIUM II 350 32MB SD MMX ATX ..1395
PENTIUM II 400 32MB SD MMX ATX ..1674
PENTIUM II 450 32MB SD MMX ATX ..2025
* ALL SYSTEMS INCLUDE:
* ASSEMBLY, 3200 MB HD,
* VIDEO CARD, 32 MB SDRAM* 14" N-I L/R MONITOR, EPOX MB
* KEYBOARD & MOUSE* & ALL MANUALS
* PENTIUM II WITH 32MB SDRAM &* PENT. II WITH BX PRO MB & ATX CASE
* PENT. II ALSO WITH 8MB VIDEO

TOSHIBA NOTEBOOKS:
RITE PRICE COMPUTERS PTY. LTD
IS YOUR TOSHIBA DEALER SPECIALIST. RING FOR ANY CONFIGURATION OR PRICE
RING/FAX FOR ANY CONFIGURATION OR PRICE
DEALER ENQUIRIES MOST WELCOME!
SHIPPED ANYWHERE IN AUSTRALIA !
(FREIGHT CHARGES EXTRA)

WE WILL NOT BE BEATEN ON PRICE OR QUALITY - ALWAYS RING FOR LATEST PRICING
PAYMENT TERMS STRICTLY COD, CASH, CASH DIRECT DEPOSIT OR (BANKCARD, MASTERCARD OR VISA @ 2.5% POSTAGE & HANDLING CHARGE)
1 YEAR (12 MONTHS) RTB WARRANTY ON ALL PARTS PRICES SUBJECT TO CHANGE WITHOUT NOTICE
ALL PRICES INCLUDE SALES TAX SEND YOUR EMAIL TO: ritepric@tpgi.com.au PLACE ORDERS VIA PHONE (03) 5672 4887 FAX: (03) 5672 4410
www1.tpg.com.au/users/ritepric

The key to efficiency and productivity.... Voice Recognition....

Dragon NaturallySpeaking Mobile



NEW

NEW

NEW

Dragon NaturallySpeaking Mobile

Speak to your computer naturally at up to 160 words per minute with these true continuous speech products.

Preferred - true continuous speech with text-to-speech & dictation playback, essential tools necessary for the business professional

Professional - this is top of the line with speciality vocabularies, you can create custom commands to automate your daily tasks.

Legal or Medical - these suites already know the specialised terminology used in your day-to-day activities with the features of the Professional Edition.

Dragon NaturallySpeaking™ Mobile is the complete speech recognition system for people on the move - it includes the Preferred Edition software.

AUSCRIPT Bringing People & Technology Together

For training, support, installation & any questions about any of these products, please contact Auscript Pty Ltd at:
voicerec@auscript.com.au
Australia wide 1800 066 689

Sydney	(02) 9238 6575	Melbourne	(03) 9672 5617
Canberra	(02) 6249 7322	Brisbane	(07) 3229 5971

Dealer enquiries welcome

Top grade upgrades.

Whether it's memory, hard disks, storage or printers – we're the PC upgrade specialists for many brands such as HP, IBM, DELL, Toshiba, Compaq, and Digital. And naturally, we'll install and repair too. We use quality parts and products from Compaq, Digital, IBM, Simple Memory, Seagate, Hypertech, Sony, Xircom, Creative Labs, Netcomm and Canon.

Call 1300 721 021, or visit www.pcservicentre.com for this week's specials.

PC servicentre

Sydney, Melbourne, Adelaide, Brisbane, Alice Springs, Darwin, Newcastle.

COMP23776/APC © PC Servicentre - a business division of Compaq Computer Australia Pty Limited. All trademarks and company names are the property of their respective owners.

AUSTRALIA'S No. 1 REFILL KITS

THE FACTS

1) PRINTER WARRANTY - *Using our Refill Kits will not void your printers warranty.*

2) BETTER THAN ORIGINAL - *All of our inks are the best quality to be found anywhere world-wide and exceed the original manufacturers highest specifications.*

3) GET WHAT YOU PAY FOR - *Our product costs us more to produce than most, however, this ensures optimal printing performance and more consistent ink properties.*

4) DESIGNED WITH YOU IN MIND - *Our Refilling methods and equipment are always being simplified and improved with help from input and feedback from our customers.*

5) SUPER SERVICE - *Our mission at New Reality Resources is to provide levels of customer care second to none. We offer free delivery to your door and a 100% satisfaction guarantee on all our products.*

6) FREE ADVICE & SUPPORT - *We will help you achieve the most out of refilling and inkjet printing and even give you free independent advice when buying a new printer.*



BUY SMART BUY DIRECT & SAVE

AUSTRALIAN MADE

100% SATISFACTION GUARANTEED

SUPERIOR PERFORMANCE
INKJET REFILLS

AUSTRALIA WIDE FREECALL-
1800 680 605

NEW REALITY RESOURCES PTY. LTD.

Australia Wide FREECALL - 1800 680 605
QLD Phone - (07) 3245 2411 Fax - (07) 3245 2755
VIC Phone - (03) 9878 8288 Fax - (03) 9878 3933

Bayside Business Park
Shop 1 / 70 Redland Bay Rd
Capalaba Q 4157

WE BRING YOU THE TRUE SOUND !



A new version of our best sub-woofer/ satellite speakers

$198 RRP

SW-101



Award winner of COMPUTER SHOPPER (American Magazine) for best speakers in Sep. p. 97 subwoofer/satellite speakers

$139 RRP

SW-102



High quality subwoofer/satellite speakers

$92 RRP

SW-103



The best buy of high quality subwoofer/satellite speakers

$89 RRP

SW-203



3D-650



SP-515



SP-315



SP-552



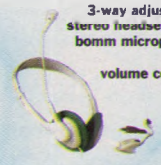
3P-352



3P-230



SP-698



3-way adjustable stereo headset with bomm microphone & volume control

HP-330



Color CMOS Video Camera



74min Recordable Disc

CD-R74



Poweraccess BizMate 3.0

A powerful and easy-to-use business management software.
Features: Multi-user, User-level Security, Invoices, Orders, Reports, Stock Controls (Optional), etc.
$15 for an unregistered full version on CD.
Visit our wed site for more details.

$390
$490 (with stock controls)



$1699 RRP

Pentium II 350 MPC

- Intel 350MHz Pentium II CPU
- GA BX Mainboard
- 64MB SDRAM
- 4.3GB Hard Disk Drive
- 4MB AGP Video Card
- 1.44MB Floppy Disk Drive
- 36 x CD-ROM Drive
- 16bit Sound Card
- 15" LG Colour Monitor
- ATX Midtower Case
- 104 Keyboard
- MS Compatible Mouse
- 300W(pmpo) Amplified Speaker
- Microsoft Windows 98
- CD Pak
- 12 Months on site Warranty

DEALER INQUIRIES WELCOME

Call for your nearest Dealers

Distributed by: **Powersource Multimedia** ☎ **61-2-9748 8600** Fax: 61-2-9748 8611

Unit 5, 20-30 Stubbs Street, Silverwater NSW 2128 Australia Email: info@psu.com.au www.psu..com.au

N2010

We have the right surround and amplified speaker for every need, every budget

Australian Personal Computer CD&Online

FOR ADVERTISING DETAILS PLEASE CALL NICHOLAS RIVIERE ON (02) 9282 8908

COMPANIES INSIDE

- Accsoft Internet
- CD Rom Service
- Lab Systems
- Swann Modems
- The Internet Group

ACCSOFT

Accsoft Internet Services

BusinessTotalConnect
Fast Reliable 24 X 7 ISDN 64K/128K
E-mail Gateway, Domain Name Services

BusinessTotalWebSite
Online Shopping Mall
Web Site Hosting
Secure Server

$38/mth Untimed 56K/V.90 (or $398/yr)
$2/hr No use-by date 56K/V.90 (or $1/hr*)
No Download Limit



Simply Experience The Difference

Access Points In
Sydney
Melbourne
Brisbane

IIDD Phone-to-Phone
Hong Kong 19¢ /min, US 28¢ /min

*In a Mon-Sun week, the 1st to 8th hours are prepaid, the 9th to 16th hours are free, the 17th hours and onwards are prepaid. Unused free hours are not to be carried forward to the following week.

PLEASE CHECK OUR WEB SITE OR RING FOR COVERAGE AND SERVICE DETAILS.

Suite F1 Citymark Bldg, 683-689 George St, Sydney NSW 2000*
Tel: (02) 9281 8163 Fax: (02) 9281 8621
http://www.accsoft.com.au/ info@accsoft.com.au
Open 7 Days

Clone your CD

Super fast duplicating & replicating service

- Premium recordable disks • Any quantity
- 100% verification • Unbeatable rates
- Same day duplicating service



CD ROM SERVICES
Tel: (02) 9954 9885
Shop 8.06, Northpoint, Nth Syd
www.cdroms.com.au

nero BURNING ROM SOFTWARE — CD-RECORDING ULTRAFAST, RELIABLE AND USER FRIENDLY

Supports all major SCSI+IDE CD-R+CD-RW recorders
IDE to Scsi, Scsi to IDE, IDE to IDE, Scsi to Scsi CD copy
Image CD copy or "On the fly" CD to CD copies
Variable pause length and index setting for audio CD's
Digital audio extraction of multiple audio tracks
New CD Text feature for naming Audio Tracks
Familiar 95 Explorer Style drag and drop interface
Multi session, Track at once, Disc at Once, Bootable CD
Mixed Mode, HFS support, ISO/HFS Hybrid CD support.
Includes Multi Mounter Software for opening old sessions
Supports MS Operating systems Win95, Win98, Win3.1, NT4

New Version 4
Plextor drives available 4x12 & 8x20
We ship Australia wide

Lab systems
Exclusive Distributor for Nero
www.labsystems.com.au Dealer enquiries welcome
e-mail derek@labsystems.com.au tel 03)9885 0888 fax 03)9885 6056

Location: http://www.ihug.com.au/

ihug THE INTERNET GROUP

price
accounts
speed
contact
where?

$29.95 flat rate per month* no download or time charges

accounts from $10.00 per month

56k V90 access

phone 13 62 92

sydney=melbourne=brisbane

* Product conditions. All accounts are subject to a joining fee of $49.00 and the terms and conditions that can be found on our website.

web works 99

Educational Internet CD-Rom



INTERACTIVE BEGINNERS GUIDE TO THE INTERNET
Over One hour of self running, interactive demos covering all aspects of the internet.

MODEM INSTALLATION TUTORIALS
Self-running tutorials that cover each step involved installing a modem to your computer.

ESSENTIAL INTERNET SOFTWARE
A complete suite of tools including email clients, web browsers, FTP software and much more.

LATEST INTERNET GAMES
Hours of fun for kids and adults alike with the latest games from Roadshow.

JARGON BUSTER
A glossary of terms that quickly and easily explains all the lingo associated with the internet.

COMPLETE LISTING OF AUSTRALIAN ISP'S
Find the right Internet Service Provider for your budget, needs and location.

ISP's

WebWorks99 is available with our wide range of SwannSmart and MacSurfer 56K V.90 internal, external and PCMCIA modems. The ideal combination in getting the most out of your web experience.

18000 MODEM
18000 66336
Melbourne Metropolitan call:
Ph: 9421 2600 Fax: 9421 3688
www.swann.com.au

Avaliable from your nearest Harvey Norman or Tandy Store

Swann MULTIMEDIA

The cover discs: apcmag.cd

These discs have two main aims:

- To provide fast, easy access to the files and resources we talk about in *APC* and to save you download time and money.
- To make it easy for our readers to get on the Internet so they can use our interactive Web site.

The kit contains browsers, file-transfer programs, mail and newsreaders and much more for each of the major operating systems. To make it as easy as possible for readers to get online, we've also included reader offers and a sign-up kit.



apcmag.cd aims to complement both the magazine and *APC*'s Web site. The concept is simple: when you read about a program in the magazine, such as a piece of software from a Shareware column, you need only insert the relevant CD, browse it with your favourite WWW browser, and download the file directly from the CD. Each piece of software includes instructions on whether you will need to unzip the file before installing it; most also include Readme files.

Using the CDs

Everything you need to use **apcmag.cd** has been created in HTML. You don't need any special software to access the discs, other than a standard browser, and they will work on most common platforms.

We've provided the software on the CDs for the convenience of our readers — to save you the effort of locating and downloading the material yourself.

As with any site on the Web, the software on the CDs is provided as is, in the hope that it will be useful to you, and without any warranty, express or implied. If you're interested in a product or service we review or refer to, contact the company that distributes or supports it for more information, or to discuss any problems you may have with it.

You should carefully read the licencing agreements and honour any evaluation or shareware terms specified, read all instructions and Readme files, and virus-check every program before use. We check the CDs with the latest available tools each month, but new viruses appear every week.

While we've taken every care to ensure that the software provided is useful and that it works, we cannot accept responsibility or liability for any of the products included.

How to run the CDs

Windows 95, 98 and NT users

These CDs use an AutoRun feature for Windows 95, 98 and NT systems. Just insert **apcmag.cd** and your browser will automatically load with the **apcmag.cd** front page.

Note: First-time users will be prompted by a browser set-up program (SETUP32.EXE) which will allow them to install a browser or update your current browser. This program is only loaded once, and subsequent use of the CD will automatically start your installed browser.

Win 3.x, OS/2, Mac, Linux

Simply launch your favourite browser and load the file DEFAULT.HTM in the root directory of the CD.

If you don't have a browser, run the file INSTALL.BAT in the root directory of the CD.

The CDs have been tested using Netscape Navigator 3.0 and 4.0, and MS Internet Explorer 3.0 and 4.0.

Conditions of entry

Instructions on 'How to Enter' form part of the Conditions of Entry of all competitions in *APC* April. Entry is free and open to all residents of Australia other than employees of ACP Publishing Pty Ltd (ACN 053 273 546), suppliers of competition prizes, their families and associated agencies.

The contests close last mail April 22. Enter according to the instructions supplied with the individual competition. The contest will be judged by a panel appointed by ACP Publishing Pty Ltd on April 23, 1999. The judges' decision in relation to any aspect of the competition is final and binding on every person who enters. No correspondence will be entered into. Chance plays no part in determining the winner. No responsibility is accepted for late, lost or misdirected entries. All entries become the property of ACP Publishing Pty Limited, the promoter, 54 Park Street, Sydney, NSW 1028.

The prizes are not transferable or redeemable for cash. Any change in the value of the prizes occurring between the publishing date and the date the prizes are claimed is not the responsibility of the promoter.

Winners will be notified by security post and their names published in the June 1999 issue of *APC*.

Contacting *APC*

Sydney Office:
Address: PO Box 4088, Sydney NSW 1028
Phone: (02) 9288 9123
Fax: (02) 9264 6320
Email: apc@acp.com.au
Melbourne Office:
Address:102 Toorak Road, South Yarra Vic 3141
Phone: (03) 9823 6333
Fax: (03) 9820 1134
Email is preferred.
Internet: apc@acp.com.au

Reader inquiries/back issues

Contact: Laura Kane
Phone: (02) 9288 9123
Email: lkane@acp.com.au
Contact for article archives, information regarding topic coverage, and back issue orders. Copies of old issues of *APC* are available at most local libraries, or from *APC*, Attn: Laura Kane, PO Box 4088, Sydney NSW 1028.
We can run out of issues quickly, so please contact Natalie Richardson before sending a cheque.

Workshop/technical queries

Contact: Workshop
Fax: (02) 9264 6320
Email: workshop@acp.com.au

Due to the volume of queries we receive, we are unable to help with technical questions over the phone. However, please post, email or fax us your technology experiences, questions, tips and hints.

Reprints and copyright

Contact: Heather Milley
Phone: (02) 9288 9162
Email: hmilley@acp.com.au
Information on copyright and rates for commercial reprints of articles or reviews used in *APC*.

Editorial submissions

We welcome readers' letters, ideas for articles or reviews, information on new products and companies, and any insight they can give into the PC industry or the use of technology.

Article ideas

Please let us know if you have an idea for an article or review you'd like to write, or that you'd like to see us cover in *APC*. We appreciate submissions, but can't guarantee a reply. Please send (preferably by email) a brief résumé with an outline of your experience and interests, and a sample of your writing with an outline of the article you have in mind.

Press releases

Please send press releases to the address listed at left, via email to press@acp.com.au or to one of the following specific section editors:

News	Angus Kidman akidman@acp.com.au
First Take	Nathan Taylor ntaylor@acp.com.au
Features	Helen Dancer hdancer@acp.com.au
Reviews	Steven Fear sfear@acp.com.au
Technical Features	Selina Mitchell smitchell@acp.com.au
Workshop	Stephen Withers swithers@acp.com.au
After Hours	Lindsay Hayman lhayman@acp.com.au

Due to the volume of mail we receive, we are unable to confirm receipt of individual press releases. Please feel free to contact us for a copy of our PR Guide and Media Kit.

Adelong Computers

April 1999

Our Free Advice can save you a small fortune!

ADELONG australia

INDEX

SYSTEMS/NOTEBOOKS
Adelong Systems 2
Adelong System 3
IBM Aptivas 4
IBM Thinkpads 5
Toshiba Notebooks 6

COMPONENTS
Processor / Memory 7
AOpen MotherBoards 8
Adaptec SCSI Cards 11

Hard Drives
Western Digital 9
Quantum 10
IBM 10
Seagate 10

DISPLAY CARDS
Creative 12
Eagle 13
Miro 13
Diamond 14
STB 15

SOUND CARDS
Creative 12
Eagle 13
Diamond 14
Altec Lansing 15

MODEMS
Swan 16
Spirit 16
Banksia / Netcomm 17
3COM USR 17

MONITORS
Mitsubishi 18
Panasonic 19
Videocom 19
CTX Projectors 20

PRINTERS, SCANNERS & DIGITAL CAMERAS
Plusteck 12
Canon 25
HP 26
UMAX 27
Epson 27
Kodak Cameras 28
HP Scanners 28
Logitech CAM 29

STORAGE
Mitsubishi 18
Panasonic 19
Teac 20
Ricoh 21
Iomega 22
Seagate 23

NETWORKING
D-Link 24
NetGear 23

MISCALLAINOUS
MGM UPS 21
CPU / Video Splitters 30
USB Devices 31
Cases / Power Supply 30
Logitech Input Devices 29
Terms & Conditions 32
Order Form 32

ADVANTAGE CELESTIAL 333



Intel Celeron 333Mhz Processor
32MB SDRAM
3.2GB Ultra ATA Hard Drive
8MB Graphics Card
15" Color Monitor
40X CD-ROM Drive
100Watt Stereo Speakers
16bits SoundCard
Minitower Case
Mouse & 104K Keyboard
Windows 98 **$1295** SYADE042

Only **$75** To add a 56k Fax/Modem

BE INTERNET READY!

Never has so much computing power been so affordable!

APTIVA E SERIES



IBM Quality

from a low **$1895**
SYIBM000

IBM.

See page 6

MP7040 SERIES DRIVE

RICOH 4X ReWrite 4 Record 20xRead MAX



ReWrite faster than ever before. **$895** MMRIC005

See page 21

DTK 15" MONITOR

15" N/I Digital Monitor. Excellent value and great performance. Features a 13.8" viewable area and 0.28 dot pitch.

$285 MODTK000

SATELLITE SERIES

TOSHIBA



- 300Mhz
- 64Mb Ram
- 4Gb of HD
- 12.1" Active Matrix Colour

From An Amazing **$3425** NBTOS050

See page 6

Corporate, Government and Educational Departments Call our strategical account managers on: (02) 8344 3188

HOW TO ORDER

Call Our Sales Hotline
02 8344 3190

Fax Orders
02 9697 9145

Email Order
sales@adelong.com.au

Online Secure Store
www.adelong.com.au

Adelong Computers

Systems

Adelong's line of Advantage PCs offer performance, reliability and quality packaged at an affordable price. Call our professional sales staff today for advice and a custom configuration to cater for your needs. In addition we offer lease and rental options to our customers for private and business use.

intel inside pentium III



Adelong Power Advantage

- 1.44MB Floppy Drive
- 64MB SDRAM
- 10.1GB Ultra ATA Hard Drive
- 8MB i740 AGP Graphics Card
- 17" Colour Monitor
- 40X Speed CD-ROM
- Diamond S90 A3D Sound Card
- Altec Lansing ACS 45.1 Speakers
- Wheel Mouse
- 104K Keyboard
- Deluxe Medium Tower Case
- Windows 98

Celeron 400Mhz
$2375 or $30.50per week* SYADE056

Pentium II 400Mhz
$2675 or $22.75 per week* SYADE032

Pentium II 450Mhz
$3075 or $25.95 per week* SYADE037

Pentium III 450Mhz
$3175 or $26.75 per week* SYADE062

Pentium III 500Mhz
$3595 or $30.00per week* SYADE063



Adelong SOHO Advantage

- Intel Celeron Processor
- 1.44MB Floppy Drive
- 32MB SDRAM
- 6.4GB Ultra ATA Hard Drive
- 4MB AGP Graphics Card
- 15" Colour Monitor
- 36X CD-ROM Drive
- ESS Solo-1 SoundCard
- 100Watt Speakers
- Deluxe ATX Case
- Wheel Mouse
- 104K Keyboard
- Windows 98

Celeron 333Mhz
$1495 or $14.50 per week* SYADE039

Celeron 366Mhz
$1575 or $15.75 per week* SYADE053

Celeron 400Mhz
$1675 or $16.50 per week* SYADE054

Upgrades For The SOHO Advantage

64Mb SDRAM	$85
17" Monitor	$249
10.1Gb Hard Disk	$99
56k Internal Modem	$75
Window NT 4.0 Workstation	$165
3 Year on-site warranty Australia wide	$110

Upgrades For The POWER Advantage

16Mb Diamond Viper V550 AGP Graphics Card	$175
128MB PC-100 SDRAM	$175
56k Internal Modem	$75
DVD-Rom Drive and Decoder Card	$295
3 Year on-site warranty Australia wide	$110

INTERNET WEB SITE:
http://www.adelong.com.au
e.mail: info@adelong.com.au

HEAD OFFICE & SERVICE
54 Rosebery Avenue
Rosebery NSW 2018
Ph: (02) 8344 3188
Fax: (02) 9697 9777

CITY OFFICE
127 York Street
Sydney NSW 2000
Ph: (02) 9267 5272
Fax: (02) 9267 5042

Systems

MMX™ intel inside pentium II

DIAMOND MULTIMEDIA DRIVEN

- Average delivery within 3 to 5 working days
- 7-Day customer satisfaction guarantee*
- Technical support hotline
- Fully Customizable

Year 2000 Compliant

Advantage Diamond Pro

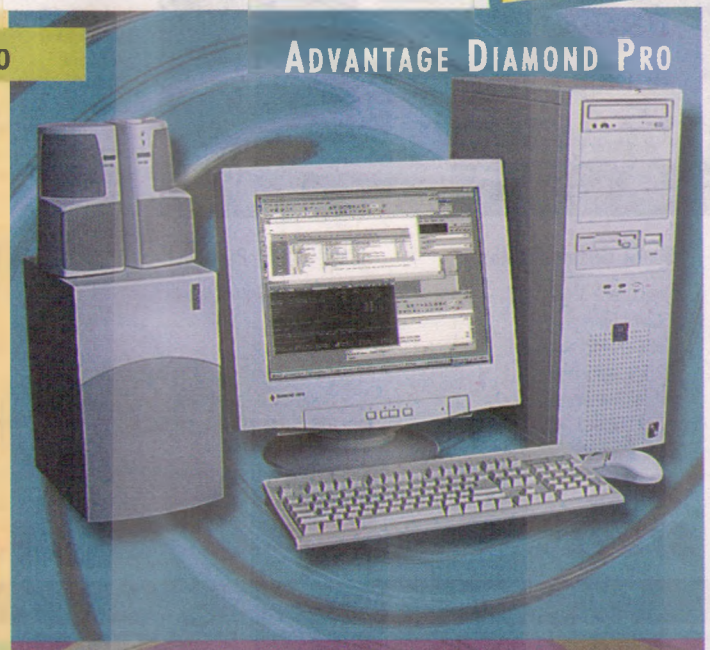
- 1.44MB Floppy Drive
- Micronics C400 Mainboard
- 64MB SDRAM
- 16MB Diamond Viper V550 AGP
- 10.1GB Ultra ATA Hard Drive
- 17" Diamond View Monitor
- Monster Sound MX300 SoundCard
- 40X CD-ROM Drive
- Altec Lansing ADA305 with Dolby Pro Logic Decoder
- Deluxe ATX Case
- Wheel Mouse
- 104K Keyboard
- Windows 98

Celeron 366Mhz $2775 or $23.50 per week* SYADE057

Celeron 400Mhz $2849 or $24.00 per week* SYADE058

Pentium II 400Mhz $3175 or $26.75 per week* SYADE048

Pentium II 450Mhz $3575 or $24.95 per week* SYADE049



Advantage Diamond

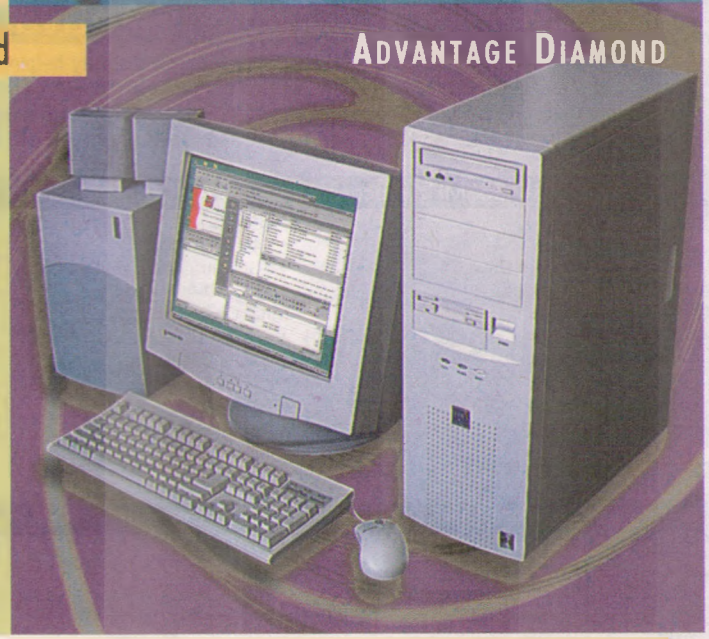
- 1.44MB Floppy Drive
- 32MB SDRAM
- 6.4GB Ultra ATA Hard Drive
- 8MB Diamond Viper V550
- 15" Colour Monitor
- 40X CD-ROM Drive
- Diamond Impact S90 SoundCard
- Altec Lansing ACS45.1 Speakers
- Deluxe ATX Case
- Wheel Mouse
- 104K Keyboard
- Windows 98

AMD K2-350Mhz $1875 or $18.50 per week* SYADE051

AMD K6-2 400Mhz $1995 or $19.50 per week* SYADE052

Celeron 366Mhz $1895 or $18.70 per week* SYADE060

Celeron 400Mhz $1995 or $19.50 per week* SYADE061



Upgrades For The Advantage Diamond Pro

128Mb PC-100 SDRAM	$175
19" Monitor	$415
56k Internal Modem	$75
3 Year on-site warranty Australia wide	$110

Upgrades For The Advantage Diamond

16Mb Diamond Viper V550 AGP Graphics Card	$95
64Mb PC-100 SDRAM	$85
17" Monitor	$249
56k Internal Modem	$75
3 Year on-site warranty Australia wide	$110

* Rentals based on a 36 month term.

Sales staff are available (est) 9am-6pm Monday to Friday, 10am-4pm Saturday
Technical Support (5 Days a week 9am-6pm) Phone (02) [redacted] 3150

Sales Hotline 02 8344 3190

AMERICAN EXPRESS · Bankcard · MasterCard · VISA · eftpos

RESELLER ENQUIRIES WELCOME

*Please read our Terms and Conditions

Adelong Computers

Adelong Computers

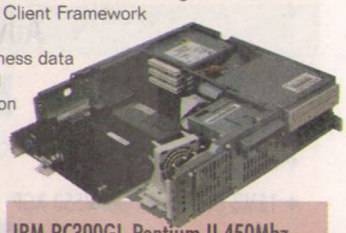
Systems

IBM PC 300GL



The affordable PC for core business needs. An IBM PC 300GL with a Pentium II processor offers the raw power your newest business applications need while maintaining exceptional value and affordability. It is designed to help you manage your business, and your budget.

- Enabled for IBM's innovative Wake on LAN technology
- Includes Client Services for Netfinity Manager, LANClient Control Manager, Intel®'s LANDesk® Client Manager and Tivoli Lightweight Client Framework software
- SMART Reaction(TM) software helps protect business data
- Enhanced Asset Information Area (on an EEPROM chip) recorded with system and end-user information
- Easy to service and upgrade with an NLX or ATX motherboard and advanced chassis design



PC300GL Celeron 366Mhz

- Intel Celeron 366MHz
- 128KB Cache
- 32MB SDRAM
- 3.5" 1.44MB Diskette
- 4.2GB ATA Hard Disk Drive
- 2MB SGRAM S3 Trio3D AGP Graphics Card
- 15" Colour Monitor
- Enhanced Keyboard & Mouse
- Windows. 98

$1895 SYIBM000

IBM PC300GL Pentium II 350Mhz

- Intel Pentium II 350MHz
- 512KB Cache
- 32MB SDRAM
- 3.5" 1.44MB Diskette
- 3.2GB ATA Hard Disk Drive
- 2MB SGRAM S3 Trio3D AGP Graphics Card
- 15" Colour Monitor
- Enhanced Keyboard & Mouse
- Windows. 95

$2225 SYIBM001

IBM PC300GL Pentium II 400Mhz

- Intel Pentium II 400MHz
- 512KB Cache
- 32MB SDRAM
- 3.5" 1.44MB Diskette
- 3.2GB ATA Hard Disk Drive
- 2MB SGRAM S3 Trio3D AGP Graphics Card
- 15" Colour Monitor
- Enhanced Keyboard & Mouse
- Windows. 98

$2395 SYIBM002

IBM PC300GL Pentium II 450Mhz

- Intel Pentium II 450MHz
- 512KB Cache
- 64MB SDRAM
- 3.5" 1.44MB Diskette
- 6.4GB ATA Hard Disk Drive
- 4MB SGRAM S3 Trio3D AGP Graphics Card
- 15" Colour Monitor
- Enhanced Keyboard & Mouse
- Windows. 98

$2895 SYIBM003

• Add $95 for Windows NT 4.0 Workstation • Add $265 for 32x EIDE CD-ROM

Aptiva E Series

Delivering the ideal combination of **performance and affordability** helping you excel at work, play and school. Software bundle including: Microsoft Windows 98 and Lotus Smartsuite Millennium Version plus IBM Via Voice 98 - Office Edition, Netscape Navigator, Microsoft Internet Explorer and Norton Antivirus (OEM version)



Aptiva AMD K6-2 333MHz Processor

- 512k Cache
- 64MB SDRAM
- 4GB Ultra ATA Hard Drive
- 8MB 3D AGP Graphics
- 15" Colour Monitor
- 32x CD-ROM
- Infinity Speakers
- 104KB & Mouse
- 56K Fax/Modem
- Windows 98

$1845 SYIBM004

Aptiva AMD K6-2 350MHz Processor

- 512k Cache
- 64MB SDRAM
- 6GB Ultra ATA Hard Drive
- 8MB 3D AGP Graphics
- 15" Colour Monitor
- 32x CD-ROM
- Infinity Speakers
- 104KB & Mouse
- 56K Fax/Modem
- Windows 98

$2195 SYIBM005

Aptiva Celeron 400MHz Processor

- 128k Cache
- 64MB SDRAM
- 8GB Ultra ATA Hard Drive
- 3D Graphics Bluster 128ZX
- 15" Colour Monitor
- 32x CD-ROM
- Infinity Speakers
- 104KB & Mouse
- 56K Fax/Modem
- Windows 98

$2645 SYIBM006

Aptiva Pentium II 400MHz Processor

- 512k Cache
- 64MB SDRAM
- 10GB Ultra ATA Hard Drive
- 3D Graphics Bluster 128ZX
- 15" Colour Monitor
- DVD-4 ROM
- Infinity Speakers
- 104KB & Mouse
- 56K Fax/Modem
- Windows 98

$3295 SYIBM007

MMX™ intel inside pentium® II PROCESSOR

• Add $275 for 17" Monitor

INTERNET WEB SITE:
http://www.adelong.com.au
e.mail: info@adelong.com.au

HEAD OFFICE & SERVICE
54 Rosebery Avenue
Rosebery NSW 2018
Ph: (02) 8344 3188
Fax: (02) 9697 9777

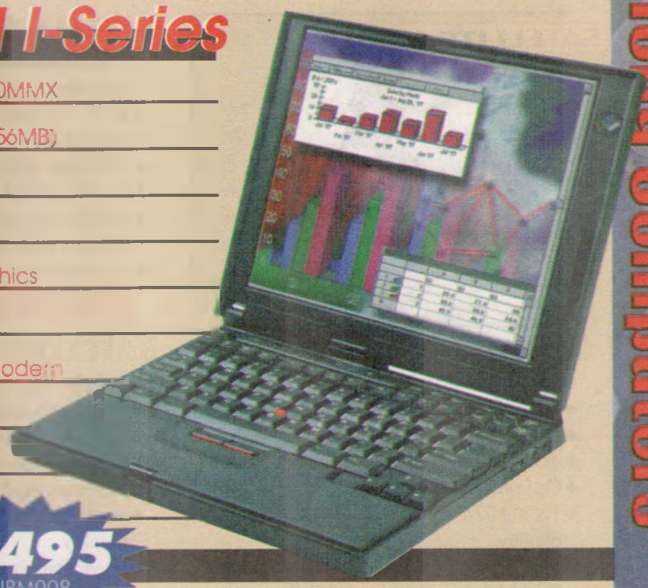
CITY OFFICE
127 York Street
Sydney NSW 2000
Ph: (02) 9267 5272
Fax: (02) 9267 5042

Notebooks

IBM

The perfect partner for students and business professionals, the i-Series is IBM's most affordable notebook combing a sleek design with reliability and breathtaking multimedia capabilities.

IBM I-Series	NEW IBM I-Series
Intel Pentium Processor 266Mhz with MMX	Pentium Processor 300MMX
32MB SDRAM (MAX 256MB)	32MB SDRAM (MAX 256MB)
3.2GB EIDE HDD	4GB Drive
20X CD-ROM	24X CD-ROM
2MB Neomagic Graphics	2MB Neomagic Graphics
12.1" TFT Screen	12.1" TFT Screen
Integrated 56K Fax/Modem	Integrated 56K Fax/Modem
Yamaha SoundCard	Yamaha SoundCard
Altec Lansing Audio	Altec Lansing Audio
Windows 98	Windows 98
$3199 NBIBM000	**$3495** NBIBM008



IBM Thinkpad 380Z

For the power of a desktop in a mobile unit look no further than the IBM Thinkpad 380Z range. With an Intel Pentium II 233Mhz Processor the Thinkpad provides leading edge technology at an affordable price. In addition an innovative design combines an integrated disk drive, CD-ROM and hard drive in one convenient and easy to use package.

Intel Pentium II Processor
233Mhz with MMX
32MB SDRAM (MAX 256MB)
4GB EIDE HDD
24X CD-ROM
2.5MB VRAM
13.3" TFT Screen
SoundBlaster Pro
Speakers with subwoofer
Windows 98

$4295 NBIBM002



IBM Thinkpad 600

With the new ThinkPad 600, IBM has assembled the perfect balance of mobile computing, power and portability. The ThinkPad 600 delivers award winning technology, vibrant mobile multimedia and easy connectivity. With a travel weight of 2.2kg the ThinkPad is the ideal travel companion which is ready to work when you are.

Intel Pentium II Processor
300Mhz with MMX
64MB SDRAM (MAX 288MB)
5.1GB EIDE HDD
24X CD-ROM
2MB VRAM
MPEG 1 Playback
13.3" TFT Screen
SoundBlaster Pro
Stereo Speakers
56K Fax/Modem
Windows 98



IBM ThinkPad 600E with DVD **$7650** NBIBM004

$6975 NBIBM003

IBM Thinkpad 770

For top-of-the-line power, performance and versatility, count on the ThinkPad 770. It's loaded with the biggest displays, fast Intel® Mobile Pentium® II processors, with AGP for greater graphics capabilities, complete multimedia capabilities, DVD playback and advanced communications.

Intel Pentium II Processor
300Mhz 64MB SDRAM
8.2GB EIDE HDD
4MB Graphics Card MPEG-1 & DVD-1 Playback
14.1" TFT Screen MPEG-1 & DVD-1 Playback SRS 3D Sound & Dolby Digital Output
56K Fax/Modem
Windows 98



$10,145 NBIBM009

Sales staff are available (est) 9am-6pm Monday to Friday, 10am-4pm Saturday
Technical Support (5 Days a week 9am-6pm) Phone (02) 8344 3100

Sales Hotline 02 8344 3190

RESELLER ENQUIRIES WELCOME *Please read our Terms and Conditions

Adelong Computers

TOSHIBA Notebooks

AFFORDABLE PERFORMANCE

The Satellite Series has been specifically designed to bring you maximum power in a high value, easy-to-use, highly reliable package. Fully networkable, with large active or passive screens and superb performance to make light work of the heaviest workloads.High value, high performance, and highly reliable. The Satellite Series offers you Pentium II processing with large keyboard and screens, as well as integrated 'triple spindle' drives (CD, floppy and hard disk) and power management to maximise battery life.



SATELLITE 4000CDT

- Intel Mobile Pentium II processor, 233MHz
- 12.1" TFT Active Matrix Colour Display
- Built-in diskette drive
- 24X max. speed CD-ROM
- 4Gb hard disk drive
- 32MB high performance Synchronous DRAM, expandable to 160MB
- Windows 98 operating system

$3595 NBTOS042

SATELLITE 4010CDT

- Intel Mobile Pentium II processor, 266MHz
- 12.1" TFT Active Matrix Colour Display
- Built-in diskette drive
- 24X max. speed CD-ROM
- 4Gb hard disk drive
- 32MB high performance Synchronous DRAM, expandable to 160MB
- Windows® 98

$3675 NBTOS045

SATELLITE 4030CDT

- Intel® Celeron® processor, 300MHz
- Integrated design with built-in diskette drive
- 24X max. speed CD-ROM
- 4Gb hard disk drive
- Optional Port Replicator
- 13.3" 1024 x 768 TFT active matrix colour display
- 64MB high performance Synchronous DRAM, expandable to 192MB
- Windows® 98

$3995 NBTOS047 NEW

SATELLITE 4060XCDT

- Intel® Pentium II® processor, 333MHz
- Integrated design with built-in diskette drive
- 24X max. speed CD-ROM
- 4Gb hard disk drive
- Optional Port Replicator
- 14.1" 1024 x 768 TFT active matrix colour display
- 64MB high performance Synchronous DRAM, expandable to 192MB
- Windows® 98

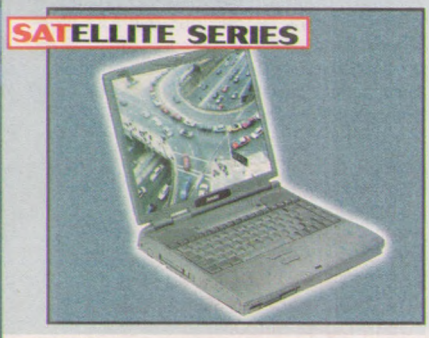
$5225 NBTOS048

SATELLITE 4080XCDT

- Intel® Mobile Pentium®II processor, 366MHz
- Integrated design with built-in diskette drive
- 24X max. speed CD-ROM
- 6.4Gb hard disk drive
- Optional Port Replicator
- 14.1" 1024 x 768 TFT active matrix colour display
- 64MB high performance Synchronous DRAM, expandable to 192MB
- Windows® 98

$6299 NBTOS049

PERFORMANCE ON A BUDGET



The Satellite 2520CDT provides exceptional value without compromising performance or reliability. Superb storage, plenty of expansion options and a dynamic sound system make the Toshiba Satellite 2520CDT a portable computer perfect for today's business and individual users. Using the AMD K6-II to obtain performance similar to Pentium II at a lower cost, this notebook is great for no affordable computing.

SATELLITE 2520CDT

- AMD K6- II 300MHz processor
- 12.1" TFT Active Matrix Colour Display
- Built-in diskette drive
- 24X max. speed CD-ROM
- 4Gb hard disk drive
- 64MB high performance Synchronous DRAM, expandable to 160MB
- Windows® 98 operating system

$3425 NBTOS050 NEW

DESKTOP PERFORMANCE

The Tecra 8000 Series is the ideal business desktop-replacement mobile computer. With a Tecra, you are never chained to a desk. Tecra also delivers exceptionally low total cost of ownership through a single software image, architecture longevity and a full 3 year warranty. No wonder Tecra is the dream deployment platform for so many corporations. The Tecra 8000 Series offers you an internal modem,333Mhz to 366Mhz Intel Pentium I I processors, optional CD or DVD capabilities and up to 13.3" true life colour display.



TECRA 8000 PII 333

- Intel® Mobile Pentium® II processor, 333MHz
- Integrated design with built-in diskette drive
- 24X max. speed CD-ROM
- 6.4Gb hard disk drive
- Optional Port Replicator
- 13.3" 1024 x 768 TFT active matrix colour display
- 64MB high performance Synchronous DRAM, expandable to 192MB
- Windows® 98

$6599 NBTOS051

TECRA 8000 PII 366

- Intel® Mobile Pentium® II processor, 366MHz
- Integrated design with built-in diskette drive
- 24X max. speed CD-ROM
- 10Gb hard disk drive
- Optional Port Replicator
- 13.3" 1024 x 768 TFT active matrix colour display
- 64MB high performance Synchronous DRAM, expandable to 192MB
- Windows® 98

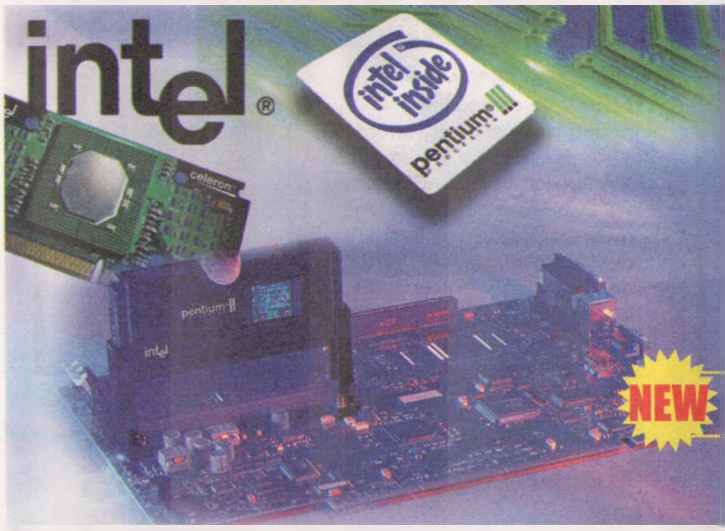
$8499 NBTOS052

INTERNET WEB SITE:
http://www.adelong.com.au
e.mail: info@adelong.com.au

HEAD OFFICE & SERVICE
54 Rosebery Avenue
Rosebery NSW 2018
Ph: (02) 8344 3188
Fax: (02) 9697 9777

OFFICE
127 York Street
Sydney NSW 2000
Ph: (02) 9267 5272
Fax: (02) 9267 5042

Processor



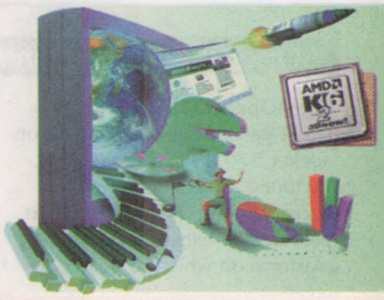
Code	Model	Price
CPINT021	Celeron 333 with 128K Cache	$175
CPINT022	Celeron 366Mhz with 128K Cache	$245
CPINT025	Celeron 400Mhz with 128K Cache	$345
CPINT023	Celeron 333Mhz PPGA	$170
CPINT024	Celeron 366Mhz PPGA	$225
CPINT026	Celeron 400Mhz PPGA	$325
CPINT015	Pentium II 350Mhz with 512K Cache	$415
CPINT016	Pentium II 400Mhz with 512K Cache	$660
CPINT017	Pentium II 450Mhz with 512K Cache	$1075
CPINT027	Intel Pentium III 450Mhz	$1175
CPINT028	Intel Pentium III 500Mhz	$1625

PRICE DROP

NEW

PPGA CPUs are compatible with socket 370 mainboards.

AMD K6 2 PROCESSOR 3DNOW!



Code	Model	Price
CPAMD015	AMD K6-2 333	$179
CPAMD010	AMD K6-2 350	$245
CPAMD014	AMD K6-2 400	$365

Heatsink and Fan

Code	Model	Price
MSADE006	Socket 7 CPU FAN	$15

Cyrix MII Cyrix A National Semiconductor Company



Code	Model	Price
CPIBM008	M2-300MHZ	$99
CPIBM009	M2-333MHZ	$149

Heatsink and Fan

Code	Model	Price
MSADE006	Socket 7 CPU FAN	$15

Memory



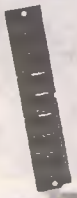
SDRAM - For use in current Pentium / Pentium II systems utilising Intel TX / LX / BX Chipsets. PC-100 for 100Mhz Chipsets. Use individually. All SDRAM is 168 Pin.
*** For use with latel BX & Super Socket 7 Mainboards**

Code	Model	Price
RAGEN008	32MB SDRAM	$88
RAGEN009	64MB SDRAM	$185
RAGEN021	128MB SDRAM	$379
RAGEN022	64MB PC-100 SDRAM	$195
RAGEN023	128MB PC-100 SDRAM	$365



EDO RAM - For use in newer 486 systems and most Pentium / Pentium Pro style systems. Used in pairs in Pentiums & Pentium Pro's.

Code	Model	Price
RAGEN005	16MB EDO SIMM 72 Pin	$69
RAGEN006	32MB EDO SIMM 72 Pin	$135



Fast Page RAM - For use in older 486 & Pentium systems and some printers.Use in pairs in Pentiums.

Code	Model	Price
RAGEN001	8MB SIMM 72 Pin	$45
RAGEN002	16MB SIMM 72 Pin	$75
RAGEN003	32MB SIMM 72 Pin	$155

Sales staff are available (est) 9am-6pm Monday to Friday, 10am-4pm Saturday
Technical Support (5 Days a week 9am-6pm) Phone (02) 8344 3180

AMERICAN EXPRESS bankcard MasterCard VISA eftpos

Sales Hotline 02 8344 3190

RESELLER ENQUIRIES WELCOME *Please read our Terms and Condition

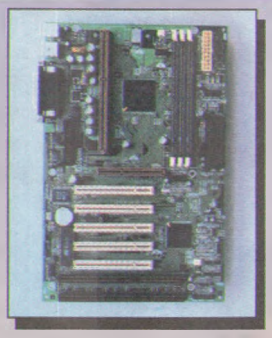
ADELONG australia

Adelong Computers

Adelong Computers

AOpen® Mainboards

AOpen AX6BC Mainboard

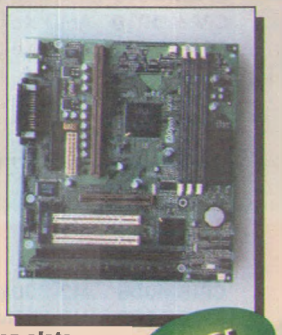


Introducing the AOpen AX6BC Mainboard featuring the Intel BX Chipset. A unique jumperless design, CPU monitoring & protection circuitry combines ease of use with reliability and performance. Winner of many international awards you can be sure that the AX6BC Mainboard will work with you, not against you.

- ***Supports Intel Pentium II 233 - 450Mhz & Celeron Processors***
- ***5 x PCI, 2 x ISA, 1 x AGPx2 Expansion slots***
- ***768MB SDRAM for 3 x DIMM slots***
- ***2 x Serial, 1 x Parallel, 2 x USB Ports***
- ***2 x EIDE Controller & ATX Form Factor***
- ***Supports Wake on LAN, DMI, SB-LINK***

$235
MBACE000

AOpen AX6B Plus Mainboard



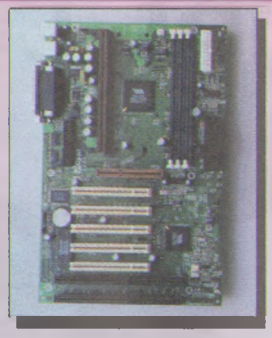
Building on the quality & performance of the AX6BC Mainboard the new Aopen AX6B comes standard with an Adaptec 7880P Ultra Wide SCSI Controller (onboard). An excellent choice for mid range servers and workstations where speed is a must!

- ***Supports Intel Pentium II 233 - 450Mhz & Celeron Processors***
- ***4 x PCI, 3 x ISA, 1 x AGPx2 Expansion slots***
- ***768MB SDRAM for 3 x DIMM slots***
- ***2 x Serial, 1 x Parallel, 2 x USB Ports***
- ***SCSI on board - Adaptec 7880P SCSI Controller With 68pin U/W & 50pin Ultra SCSI connectors***
- ***2 x EIDE Controller & ATX Form Factor***
- ***Supports Wake on LAN, DMI, SB-LINK***

SCSI

$495
MBACE001

AOpen AX63 Pentium II Mainboard

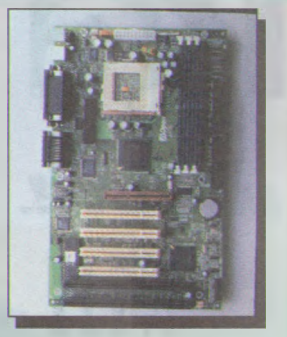


The AOpen AX63 Mainboard brings true computing performance at a very affordable price. Powered by the advanced VIA Apollo Pro Plus AGP chipset the AX63 Mainboard supports technologies such as Jumperless design, Resetable fuse for USB & K/B, BIOS flash protection and CPU protection.

- ***Supports Intel Pentium II 233 - 450Mhz & Celeron Processors***
- ***5 x PCI, 2 x ISA, 1 x AGPx2 Expansion slots***
- ***768MB SDRAM for 3 x DIMM slots***
- ***2 x Serial, 1 x Parallel, 2 x USB Ports***
- ***2 x EIDE Controller & ATX Form Factor3***

$195
MBACE002

AOpen AX3L Celeron Mainboard



The AOpen AX3L supports the latest generation of Intel Celeron socket 370 (PPGA) Processors. Featuring an ESS Solo 1 PCI Soundcard the AX3L Mainboard provides an excellent computing platform on which to build.

- ***Supports Intel Celeron 300A - 400Mhz***
- ***4 x PCI, 2 x ISA, 1 x AGPx2 Expansion slots***
- ***384MB SDRAM for 3 x DIMM slots***
- ***2 x Serial, 1 x Parallel, 2 x USB Ports***
- ***2 x EIDE Controller & ATX Form Factor***

BONUS
Norton AntiVirus
With All AOpen Mainboards

$195
MBACE003

AOpen EIDE CD-ROM

BONUS
Norton AntiVirus

- ATAPI IDE CD-ROM
- Ultra DMA Supported
- 512Kbytes buffer
- Compatible with CD-DA, CD-ROM/XA, CD-I/MPEG, Photo CD, Karaoke CD, CD, CD-RW, Packet write
- Audio Extraction

AOpen CD-940E

MAX Transfer Rate 7200KB/sec with 48X

48X CD-ROM
$129
MMACE001

AOpen CD-948E

MAX Transfer Rate 6000KB/sec with 40X

40X CD-ROM
$95
MMACE000



INTERNET WEB SITE:
http://www.adelong.com.au
e.mail: info@adelong.com.au

HEAD OFFICE & SERVICE
54 Rosebery Avenue
Rosebery NSW 2018
Ph: (02) 9344 3188
Fax: (02) 9697 9277

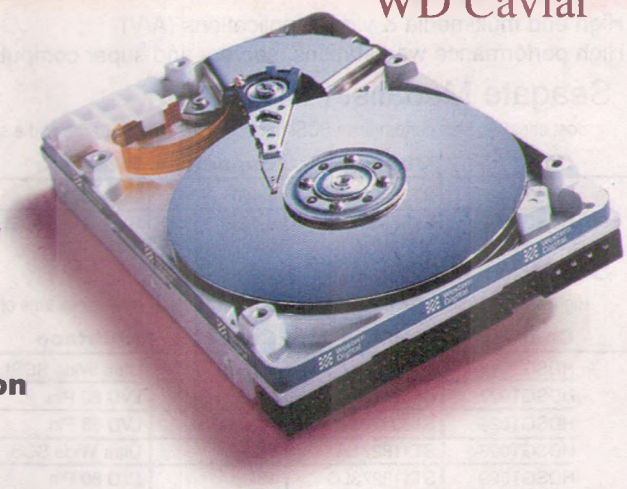
CITY OFFICE
127 York Street
Sydney NSW 2000
Ph: (02) 9267 5272
Fax: (02) 9267 5042

Hard Drives

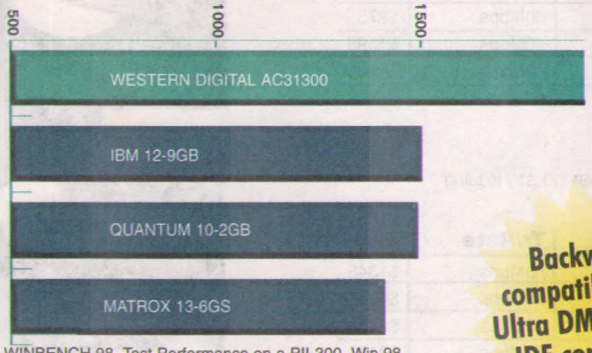
Western Digital

WD Caviar®

Introducing the new range of Western Digital Caviar EIDE hard drives. Sporting the industry's first Ultra ATA/66 high speed data transfer feature, the new Caviar drives feature a maximum transfer rate of 66Mb/s. That's double the speed of its nearest rival. All Western Digital Caviar drives undergo 200 rigorous tests before shipping to ensure compatibility and reliability with all your existing hardware & software applications.



Competition Performance Comparison



WINBENCH 98, Test Performance on a PII-300, Win 98

Backwards compatible with Ultra DMA 33 and IDE controllers

Data LifeguardTM is a system of embedded features designed to protect end-user data by automatically detecting, isolating and repairing problem areas on the hard drive before possible data loss can occur. Data Lifeguard is implemented in Western Digital's latest WD Caviar hard drives.

Ultra ATA/66 is the latest in hard drive technology providing a maximum transfer rate of 66Mb/s as compared to the industry standard of 33Mb/s. Backwards compatible with all existing IDE & EIDE ports the Western Digital Caviar drives will integrate smoothly in your PC or MAC G3.



- ULTRA ATA 66
- 66Mb/Sec Transfer Rate
- 512Kb Cache For Maximum Performance
- Low 9.5ms Access Speed
- 5400RPM

Code	Model	Size (GB)	Transfer Rate	Price
HDWES002	AC14300	4.3GB	66Mb/s	$265
HDWES003	AC25400	6.4GB	66Mb/s	$305
HDWES004	AC28400	8.4GB	66Mb/s	$339
HDWES005	AC310200	10.2GB	66Mb/s	$405
HDWES006	AC313000	13.1GB	66Mb/s	$499

Sales staff are available (est) 9am-6pm Monday to Friday, 10am-4pm Saturday
Technical Support (5 Days a week 9am-6pm) Phone (02) 8344 3160

Sales Hotline 02 8344 3190

RESELLER ENQUIRIES WELCOME. *Please read our Terms and Conditions

Hard Drives

High performance disk solutions from Seagate catering for: Seagate

- High end multimedia & video applications (A/V)
- Graphics and 3D Applications
- High performance workstations, servers and super computers
- Internet/Intranet based webservers

Seagate Medalist Pro

Cost effective, high performance SCSI hard drives with 512K cache and a spindle speed of 7200RPM.



Code	Model	Capacity	Interface	Tr/Rate	Price
HDSGT025	ST36530N	6.4GB	Ultra SCSI	20Mbps	$599
HDSGT026	ST36530W	6.4GB	Ultra Wide SCSI	40Mbps	$599

Seagate Barracuda

High Capacity, ultra high performance SCSI Hard Drives with a seek time of 7ms and a spindle speed of 7200RPM.



Code	Model	Capacity	Interface	Tr/Rate	Price
HDSGT014	ST39173W	9.1GB	Ultra Wide SCSI	40Mbps	$875
HDSGT027	ST39173LC	9.1GB	LVD 80 Pin	80Mbps	$875
HDSGT028	ST39173LW	9.1GB	LVD 68 Pin	80Mbps	$875
HDSGT023	ST118273W	18GB	Ultra Wide SCSI	40Mbps	$1595
HDSGT029	ST118273LC	18GB	LVD 80 Pin	80Mbps	$1595
HDSGT030	ST118273LW	18GB	LVD 68 Pin	80Mbps	$1595

Seagate Cheetah

Ultimate Performance for servers and high-powered workstations. Features an industry leading 10,000 RPM spindle speed & a cache buffer of 512K.



Code	Model	Capacity	Interface	Tr/Rate	Price
HDSGT031	ST39102LC	9.1GB	LVD 80 Pin	80Mbps	$1345
HDSGT032	ST39102LW	9.1GB	LVD 68 Pin	80Mbps	$1345
HDSGT033	ST118202LC	18GB	LVD 80 Pin	80Mbps	$2195
HDSGT034	ST118202LW	18GB	LVD 68 Pin	80Mbps	$2195

LVD: Low Voltage Differential Drives are for use with Ultra 2 SCSI Controllers such as the Adaptec 2940U2W Controller giving you a transfer rate of 80Mbps. Backwards compatible with Ultra & Ultra Wide SCSI Controllers.

IBM Hard Drives

IBM

TravelStar 2.5" IDE Drives

Experience blistering performance on a notebook computer. The IBM range of TravelStar IDE drives feature 512K of cache accessed via an Ultra ATA interface. Compatible with all notebook & laptop computers.

LAPTOP DRIVES

Code	Capacity	Seek Time	Tr/Rate	Price
HDIBM002	3.2GB	13ms	33Mb/s	$379
HDIBM025	4.8GB	12ms	33Mb/s	$439
HDIBM026	5.4GB	12ms	33Mb/s	$505
HDIBM027	6.4GB	12ms	33Mb/s	$585

UltraStar 3.5" SCSI Drives

Quality, performance at a reasonable price is what the IBM UltraStar range of hard drives offer. Featuring a seek time of 7.5ms, cache size of 512K and a spindle speed of 7200 RPM be sure that the UltraStar range of drives will give you sizzling performance that wont break the bank!

Code	Capacity	Interface	Tr/Rate	Price
HDIBM010	4.5GB	Ultra Wide SCSI	40Mb/s	$470
HDIBM012	9.1GB	Ultra Wide SCSI	40Mb/s	$795

Quantum Hard Drives

Quantum

The new Quantum Fireball EX EIDE hard disk drives reaffirms the Fireball brand as the standard in desktop storage. Quantum drives feature Shock Protection SystemTM (SPS) which prevents shock from having a detrimental effect on a drives long term reliability and data integrity.

Code	Capacity	Seek Time	Spindle Speed	Tr/Rate	Price
HDQTM041	3.2GB	9.5ms	5400 RPM	33Mb/s	$239
HDQTM039	6.4GB	9.5ms	5400 RPM	33Mb/s	$299
HDQTM038	12.7GB	9.5ms	5400 RPM	33Mb/s	$465

ULTRA ATA

INTERNET WEB SITE:
http://www.adelong.com.au
e.mail: info@adelong.com.au

HEAD OFFICE & SERVICE
54 Rosebery Avenue
Rosebery NSW 2018
Ph: (02) 8344 3188
Fax: (02) 9697 9777

CITY OFFICE
127 York Street
Sydney NSW 2000
Ph: (02) 9267 5272
Fax: (02) 9267 5042

SCSI Cards

adaptec

Adaptec 2906 PCI card for desktop PCs

Connect up to 7 SCSI devices and gain great performance by moving to SCSI with the Adaptec 2906. Run your ZIP drive or Scanner up to 6 times faster than with a parallel port connection. Adaptec EZ-SCSI Software is included to help you manage your peripherals.



$115
CCGEN021

EASY CD CREATOR DELUXE EDITION

The easiest way to make your own CDs!

The ultimate in CD mastering software is here today. Share CD photo albums and send video postcards on CD to friends and family. Turn scratchy LPs into digital CDs and enhance your custom CDs with cool sound effects. And when it comes to backing up important files, there's nothing better than a virtually indestructible CD. Package also includes CD Copier, Video CD Creator, Picture CD Creator and Jewel Case creator software allowing you to design and personalize your CDs.



$149
CCGEN000

CD Mastering is easier than ever!

Adaptec 2940 UW PCI card

For performance systems

The Adaptec AHA-2940 Ultra Wide host adapter is the ideal SCSI adapter for entry level servers and workstations. It connects up to 15 devices and moves data at up to 40Mb/s. For unrivalled system performance and peripheral compatibility look no further than the AHA-2940UW.



RETAIL KIT **$625**
CCGEN006

OEM **$395**
CCGEN005

Adaptec 2940U2W

Unleash the full potential of your server or workstation



When it comes to boosting the performance of servers and workstations to 80Mb/s utilising Ultra2 SCSI (LVD) technology. By combining the Adaptec 2940U2W with high-performance disk drives like Seagate's Cheetah & Barracuda, and Quantum's Viking and Atlas, you'll get performance worth howling about. Maximum SCSI cable length of 12 meters.

OEM **$545**
CCGEN022

RETAIL KIT **$725**
CCGEN018

Adaptec SlimSCSI 1460

Connect SCSI devices to your laptop

For attaching a wide range of SCSI devices such as drives, CDROMs, peripherals and scanners to your notebook computer look no further than the Adaptec 1460 SlimSCSI card. Designed for Windows 95/98 and includes DB25 and Honda50 connections.



$295
CCGEN

Adaptec MiniSCSI 1350

Mini SCSI 1350 is a simple and inexpensive way to connect SCSI peripherals to a computer. It's perfect for portable or desktop computers that lack SCSI expansion capabilities. It works by converting your parallel port to SCSI in seconds and allows up to seven SCSI devices to be chained. Lightweight and easy to carry around.



$145
CCGEN023

Adaptec AAA131

RAID

Delivers up to twofold performance increase for Windows NT PCs

High end applications demand high-performance computing. RAID coprocessor manages 16Mb data cache to accelerate performance. The AAA-131 array adapter caches, reads and writes while intelligently stripping data on two or more drives for maximum I/O subsystem performance.



AAA-131 Single Channel
$909
CCGEN025

AAA-131 Single Channel 16Mb Cache
$1099
CCGEN009

AAA-133 3 Channel 120Mb
$1449
CCGEN010

Sales staff are available (est) 9am-6pm Monday to Friday, 10am-4pm Saturday
Technical Support (5 Days a week 9am-6pm) Phone (02) 8344 3150

Sales Hotline 02 8344 3190

AMERICAN EXPRESS · bankcard · MasterCard · VISA · eftpos

RESELLER ENQUIRIES WELCOME *Please read our Terms and Conditions

CREATIVE Multimedia



PC-DVD Encore 5X with Dxr2 technology



$565
MMCRE034

Creative® PC-DVD™ Encore 5X brings affordable third-generation DVD-ROM technology to your PC. Dolby® Digital (AC-3®) 5.1-channel* audio, 32X maximum CD-ROM speeds, and Dxr™2 picture enhancement technology provides an exciting way to watch DVD movies and run CD programs.
Connect the Dxr™2 board to your TV and watch DVD movies from the comfort of your family room. Play thousands of Video CD Titles as well.

CREATIVE BLUSTER

Graphics Bluster RIVA TNT



Delivers world-class 2D and 3D acceleration using nVidia's new RivaTNT processor Ultra-wide, high-speed 128-bit memory architecture and Twin-Texel 3D pipeline deliver mind-numbing speed in virtually any application Loaded with 16MB of Synchronous Memory and a powerful 250MHz DAC for incredibly high resolutions and refresh rates with brilliant, vivid colour

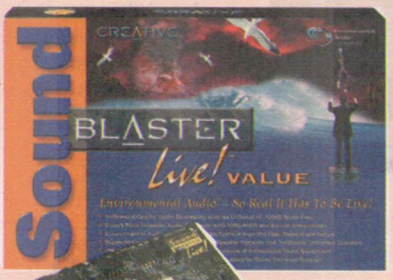


$290
MMCRE035

PRICE DROP

AGP
$290
MMCRE036

Sound Bluster Live! Value



Interested in a powerful audio/gaming experience? Listen to game and music content come alive using the analog four-speaker output - even if your sound source doesn't support 3D sound! The Sound Bluster Live! Value utilizes the same EMU10K1 audio processor as the Sound Bluster Live!, the most powerful audio chip available today. This translates into higher frame rates in your games, more bandwidth for 3D audio and an all around fantastic sounding audio experience.

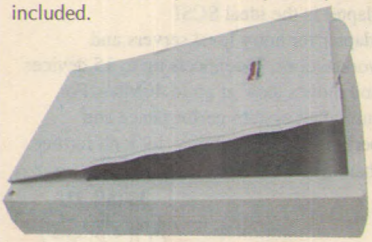


$265
MMCRE031

SCAN WITH PLUSTEK

Plustek 6000P

The ideal A4 30-bit colour flatbed scanner featuring a maximum resolution of 300 dpi (4800 dpi interpolated). Imaging and OCR software included.



PARALLEL
$135
IOPLU000

Plustek 9636P

The OpticPro 9636P is a 36-bit colour flatbed scanner which connects seaminglessly and easily to your PCs parallel port. With impressive specifications such as 9600 dpi scanning and an optical resolution of **600 x 1200** dpi the OpticPro 9636P has once again given you professional quality scanning at an affordable price. Comes bundled with imaging and OCR software.

9636P
$185
IOPLU001



Just Plug it into your parallel port

9636T
$275
IOPLU002

Plustek 9636T

The complete 4-in-1 scanning solution for scanning in **slides, negatives, documents and photographs** into your PC. With a practical slide and negative-adaptor, superb 36-bit colour depth and **600x1200** dpi resolution, this scanner also comes bundled with a unique collection of image-editing and optical character recognition (OCR) software.

INTERNET WEB SITE:
http://www.adelong.com.au
e.mail: info@adelong.com.au

HEAD OFFICE & SERVICE
54 Rosebery Avenue
Rosebery NSW 2018
Ph: (02) 8344 3188
Fax: (02) 9697 9777

CITY OFFICE
127 York Street
Sydney NSW 2000
Ph: (02) 9267 5272
Fax: (02) 9267 5042

Video & Sound Cards

EAGLE

EAGLE VOODOO II PCI GRAPHICS CARD

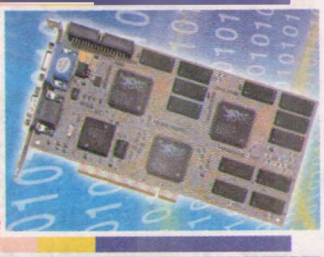
...for FOR THE ULTIMATE 2D/3D GAME EXPERIENCE!

12MB

PRICE DROP

Features:
- 12MB of high performance EDO RAM
- Based on 3Dfx Voodoo2 chipset with dual texture engines
- Full Direct3D hardware acceleration and compatible with 3Dfx Glide titles
- SLI(Scan Line Interleave) connector and SVGA loopback cable included
- Support any 2D graphics system through a video passthrough connector

$215
DCEAG004

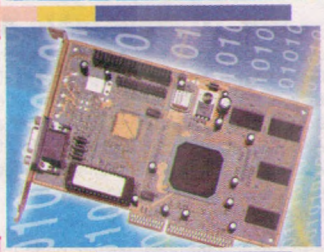


EAGLE i740 AGP VGA CARD

FOR BLISTERING PERFORMANCE AT AN AFFORDABLE PRICE!

Features:
- Using Intel 740 High Performance chipset
- Full AGP 1.0 compliant and Full feature AGP 2x Implement
- 3D Graphics Enhancements:
- Support High-Quality MPEG1 and MPEG2 playback
- Supports DirectX and OpenGL

DCEAG005 **$85**



S3 Trio3D AGP VGA CARD

...for 3D graphic enhancement!

4MB

Features:
- Using S3 86C365 3D High Performance Chipset
- High performance 3D graphics engine.
- Drivers for all major operating systems

DCEAG006 **$55**



4MB 3D FX Voodoo 3D Accelerator	**$145**	4MB S3 Virge 3D PCI VGA Card	**$53**
2MB S3 Virge 3D PCI VGA Card	**$49**	ES1938 (SOLO-1) PCI Sound Card	**$39**

Video & Capture Cards

MIROVIDEO PCTV

MiroMedia PCTV is the first multimedia auxiliary card that supports INTEL's Intercast Technology. You can now watch TV (Full screen or scalable window), capture your favourite video, or frame, use Teletext and enhance your web pages all on your PC. Runs on Windows 95/98 & NT.



MMMIR000 **$262**

MIROVIDEO PCTV PRO

The Miro PCTV Pro has all the features of PVTV plus a built-in FM radio Tuner. You can also listen to TV in full Stereo , together with Intercast Broadcast, Captures videos and listen to CDs or the radio in stereo.



MMMIR005 **$365**

MIROVIDEO DC30 PLUS

The new generation audio/video editing card for PC users. Benefit from miroINSTANT Video software to break the the 2Gb playback barrier, reduce hard drive requirements and speed up production time. Package includes Adobe Premier 5.0, Miro Instant Video, Adobe Photoshop V3 LE and the new Pinnacle Title Deko & Spice Rack. Compression rates up to 7Mb per second, video can be compressed down to 3:1 in PAL. Runs on Windows 95/98 & NT.



MMMIR00[illegible] **$2045**

Sales staff are available (est) 9am-6pm Monday to Friday, 10am-4pm Saturday
Technical Support (5 Days a week 9am-6pm) Phone (02) 8344 3160

Sales Hotline 02 8344 3190

RESELLER ENQUIRIES WELCOME

*Please read our Terms and Conditions

AMERICAN EXPRESS · bankcard · MasterCard · VISA · eftpos

Adelong Computers

DIAMOND Multimedia

www.diamondmm.com.au



Sonic Impact S90

Hot 3D Wavetable Audio!

Diamond's Sonic Impact S90 uses advanced A3D technology to bring life-like positional 3D game play to your PC. Sonic Impact S90 includes hardware acceleration for 64 wavetable voices and Aureal's A3D to immerse you in the middle of the action. Add realistic atmospheric effects, including fog and underwater sounds, and you have total audio transformation for your PC.

- PCI design for faster system performance
- 64 Hardware wavetable voices
- Supports downloadable samples
- Runs with DOS, Win95/98, Win NT 4.0

PRICE DROP

MMDIA010 **$110** RETAIL

MMDIA008 **$59** OEM

Stealth III Series

Latest 3D Technology

The New Generation of Stealth is coming!! With up to a huge 16MB of graphics memory, and AGP 2X/4X power, Diamond's new Stealth III series will deliver cutting edge games and application performance at affordable prices.

Please Call To Ask About Availability And Price.

- Features up to 16MB of graphics memory
- Supports resolutions up to 1920 x 1440
- AGP 2X or 4X (depending on model)



Viper V550

The Viper V550 from Diamond features unprecedented 128-bit power for the state-of-the-art 2D graphics and stunning 3D quality for high-speed game play, business and professional graphics. Fully optimised for Windows 98, Viper V550 is the next generation in high performance graphics acceleration. Available in PCI and AGP 2X configurations

- Featuring 16MB of SDRAM
- 128-bit dual processor architecture
- Accelerates OpenGL and DirectX
- Supports software DVD

16MB

PRICE DROP

DCDIA016 **$345** PCI

DCDIA018 **$329** AGP

DCDIA017 **$259** AGPOEM

Monster Sound MX300

Ultimate 3D Audio Experience!!!

Want to annihilate your opponents every time? Diamond's Monster Sound MX300 gives you awesome combat tools: Aureal's latest A3D 2.0 positional audio, 4-speaker support and 64-voice hardware wavetable synthesis. Imagine playing your favourite PC game hearing footsteps from behind you and gun shots from overhead. Monster Sound MX300 delivers unbelievable 3D effects to give you the unfair advantage.



- Hardware A3D 2.0 acceleration
- 9.6 audio systems
- Features Dolby Digital (AC-3) support
- Advanced 320-voice wavetable with support for downloadable samples
- Supports DOS and Windows games

MMDIA011 **$209** RETAIL

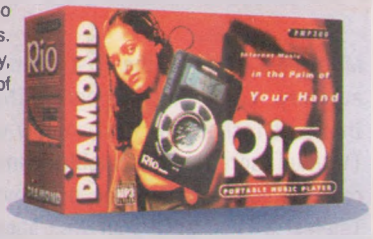
NEW MMDIA013 **$149** OEM

Rio PMP300

Internet Music in the Palm of Your Hand!

The first portable MP3 music player that stores up to 60 minutes of digital quality sound. Load the latest songs on to Rio directly from your Hard Drive, personal CD's or the Internet and carry them with you. It's smaller than an audio cassette and has no moving parts, so it never skips. Powered by a single AA battery, Rio provides up to 12 hours of continuous music playback.

- Lightweight - only 70 grams
- Palm size for easy portability
- 32MB built-in flash memory



MMDIA012 **$449**

16MB Flash Memory Card **$139** MMDIA014

Micronics C400

The Ultimate Multimedia Platform



Diamond's Micronics C400 motherboard is the perfect platform for your ultimate multimedia system. Featuring Intel's 440BX AGPset, it supports Pentium II and Celeron processor up to 450MHz, Ultra DMA/33, USB and IR communications. For your totally accelerated PC, start with the best!

- 5 PCI slots (1 shared)
- Award BIOS on 1MB flash
- Legendary Micronics quality and performance

$265

MBDIA000

HomeFree

Easy Wireless Networking!



No holes! No cables! HomeFree delivers 1MB wireless links for up to 16 PCs, 45 meters apart. Includes point-and-click network setup, software for shared Internet access, all at an incredible price. Windows 95/98 only.

- Frequency hopping for maximum security
- 45-metre range
- Each kit contains 2 nodes

Desktop to Desktop **$409** NWDIA000

Desktop to Notebook **$475** NWDIA001

INTERNET WEB SITE:
http://www.adelong.com.au
e.mail: info@adelong.com.au

HEAD OFFICE & SERVICE
54 Rosebery Avenue
Rosebery NSW 2018
Ph: (02) 8344 3188
Fax: (02) 9697 9777

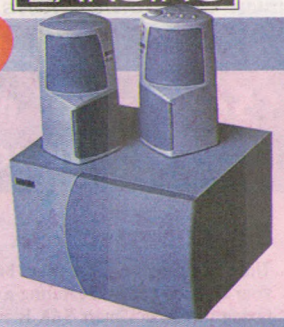
CITY OFFICE
127 York Street
Sydney NSW 2000
Ph: (02) 9267 5272
Fax: (02) 9267 5042

Speakers

ALTEC LANSING

ADA305 Digital PowerCube

NEW



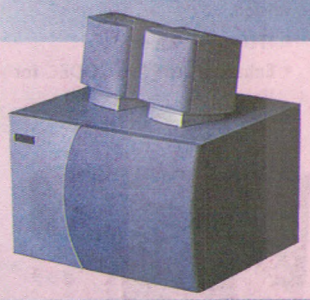
The ADA305 Digital PowerCube delivers multidimensional audio excitement resulting from a Dolby Pro Logic decoder in the subwoofer. To deliver the multichannel audio, the Digital PowerCube uses Altec Lansing's patented side-firing speakers so that the audio is driven to the side and rear for a true multidimensional audio experience.

- 20 Watts RMS Satellite Speakers
- 2 x 3" full range drivers
- 6" Subwoofer
- USB ready
- Frequency Response 20Hz - 20Khz

MMALT006 **$395**

ACS45 PowerCube Speaker System

PC MAGAZINE AUSTRALIA EDITORS' CHOICE



Introducing the Altec Lansing ACS45 PowerCube Speakers, a three piece multimedia audio solution at an unbelievable price. Experience the enhanced output of the PowerCube satellite system . Great for games and CD's, the ACS45 will bring hi-fi audio to your computer desktop today.

- 6 Watts RMS Satellite Speakers
- 3" full range driver
- 20 Watts RMS, 6" subwoofer
- frequency response 35Hz - 20 Khz

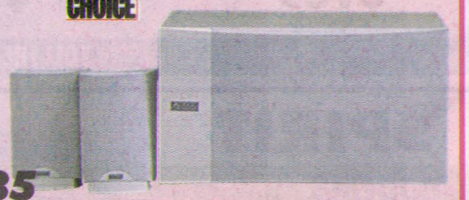
BEST Speaker under $200

MMALT001 **$195**

ACS48 PowerCube Plus Speaker System

PC MAGAZINE AUSTRALIA EDITORS' CHOICE

January 1998



The PowerCube Speaker System, from Altec Lansing is the markets leading affordable audiophile multimedia audio solution for the home or office. Comprising of a 3 unit system, allows you to experience hi-fi quality audio from your CDs, games or the Internet. In addition, the Powercube Plus 6" subwoofer is encased in wood, offering you a deeper low frequency response.

- 20 Watts RMS Satellite Speakers
- 3" full range driver
- 3/4" high frequency driver
- 40 Watts RMS, 6" subwoofer
- frequency response 35Hz - 20 Khz

MMALT003 **$285**

ACS91 Altec Lansing



The ACS91 PowerCube speaker system delivers powerful audio output to suit the home or office computer. Mainting the tradition of audio quality synonymous with Altec Lansing these speakers are now available at an unbelievable price.

- 5 Watts RMS Satellite Speakers
- 3" full range driver
- frequency response 90Hz - 20 Khz

MMALT000 **$75**

Saitek



$299
DCSAI000

Saitek R4 offers the most advanced racing wheel on the market today. Everything is where it needs to be - and the best possible shape - for long hours of gruelling, high octane action. Here at last is a wheel that keeps up with hugely popular driving games of today.

STB

www.stb.com

Velocity 4400 delivers next generation 3D graphics performance that simply blows away everything that has come before.



- NVIDIA RIVA-TNT TwiN-Texel Processor
- 16MB High-speed SDRAM Memory
- AGP 2X or PCI Bus
- 250MHz RAMDAC
- MPEG-1, -2 Playback
- Single-pass Trilinear Filtering
- Single-pass Multi-texture Processing

$349
DCSTB000

Sales staff are available (est) 9am-6pm Monday to Friday, 10am-4pm Saturday
Technical Support (5 Days a week 9am-6pm) Phone (02) 8344 3160

AMERICAN EXPRESS · bankcard · MasterCard · VISA · eftpos

Sales Hotline 02 8344 3190

RESELLER ENQUIRIES WELCOME

*Please read our Terms and Condition

Swann Modems

Specifically designed to suit Australian conditions the SwannSmart 56K line of modems bring a hassle free personal fax, data and voice telecommunication centre right to your fingertips!

SwannSmart 56K

The SwannSmart 56K modem brings full communication capabilities to your desktop today. Featuring a download speed of 56Kb/s and Group 3 faxing the SwannSmart 56K is available in both an external & internal version.

- ITU V.90 Standard
- Enhanced ADPCM CODEC for Voice
- Data Compression rates to 115,200bps
- Auto Dial & Answer
- Auto Power Management
- Answering Machine / Voice Mail
- 5 Year limited warranty



External **$139** FMSWA000



Internal PCI **$89** FMSWA0001

SwannSmart 56K Global PC Card

Specifically designed to suit conditions almost anywhere in the world the SwannSmart 56K PC-Card brings a complete data communication centre to your laptop computer....anywhere!

- ITS V.90 & 56Kflex Standard
- Location selection utility automatically configures your modem settings relative to the country's standard
- Phone Cable Adaptor for various countries
- Countries supported include Australia, UK, USA, Taiwan, HK, Canada, Japan, Germany to name a few



Use in 27 Countries

$185 FMSWA0002

TOLL FREE Customer Support Number 1800 066 336

SPIRIT Modems

MODEMS



Spirit 560SP PRO External 56K **$149** FMSPI007

Internet Voice fax/modem with Speakerphone + SVD external 56k high speed fax/modem that supports the Rockwell K56Flex standard and popular data & fax standards up to 33,600bps. Hardware based error correction & data compression. Includes Windows fax and communications software with voice mail system, plus Windows Internet software.

All Modems include:

- 9/25 serial cable and Power supply (ext. model)
- Phone cord (all models)
- Installation instructions & documentation
- Software: Internet dialler & browser, data terminal emulation software, send receive fax application and voice mail system

K56 Flex + V.90

560ISP Internal 56K Model **$125** FMSPI006



$75 FMSPI008 WITH AN ADELONG SYSTEM

PCMCIA Spirit Scorpion 56 FMSPI009 **$189**

The Spirit Scorpion 56 fax/modem PC Card offers the features of a desktop fax/modem in a small "credit-card" size. Both KFlex and V90. Ready, the Scorpion 56 is a breeze to install and comes supplied with a full compliment of software. This PC Card enables the mobile professional to exchange data faster using a range of notebooks/palmtops running Win 3.1x/95/98/NT/CE.



Multimedia Spirit TV Video Card **$139** MMASPI000



Turn your PC into a TV. PCI card that brings full TV reception capabilities to your PC. Features full motion video and "still" capture.



Spirit networking includes a full compliment of NICs and Hubs in 10, 100 and 10/100 configurations.



10/100 PCI NIC NWSPI001 **$49**

INTERNET WEB SITE:
http://www.adelong.com.au
e.mail: info@adelong.com.au

HEAD OFFICE & SERVICE
54 Rosebery Avenue
Rosebery NSW 2018
Ph: (02) 8344 3188
Fax: (02) 9662 9777

CITY OFFICE
127 York Street
Sydney NSW 2000
Ph: (02) 9267 5272
Fax: (02) 9267 5042

Modems & PC Cards

3COM US Robotics Modem

56K Voice Message Modems

Now your business or home office can have more productive conference calls with the clarity and convenience of a top-quality full-duplex speakerphone - in the same device that brings the full power of the Internet into your desktop computer at amazing speeds.
With the V.90 56K Voice Faxmodem and your ordinary analog phone line, you can click through more Web pages in less time. Check out the latest weather maps, hear live audio broadcasts, even see video clips with connect speeds up to 80% faster than with other 28.8 modems.



STANDARD **$269** FMROB011



PROFESSIONAL **$295** FMROB012

Enhanced Features:

- Full Duplex Speakerphone
- Stores voice and fax messages even when your PC is switched off
- Make up to 100 documents available to callers with Fax-on-demand
- Remote retrieval of messages through single/multiply mailboxes
- Lifetime Limited Warranty

Professional Modem includes the following extra features:

- Caller ID
- One button access to voice mail
- Independent Fax Forwarding. Enables the modem to forward receiving faxes to a pre-specified number

3COM Megahertz 56K Global Fax/Modem

$295 FMROB009



- Enjoy high-speed downloads up to 56 Kbps with the V.90 & x2 56K standard
- Simply select a flag or country name to instantly configure your global modem PC Card for use worldwide
- Switch PC Cards without rebooting or exiting Windows
- Intelligent Auto Install
- Compatible with all notebooks that comply with the PC Card (PCMCIA) standard

3COM Megahertz 10/100 LAN & 56K Modem



$419 FMROB013

- Enjoy high-speed downloads up to 56 Kbps with the V.90 & x2 56K standard
- Simply select a flag or country name to instantly configure your global modem PC Card for use worldwide
- Switch PC Cards without rebooting or exiting Windows
- Intelligent Auto Install
- Compatible with all notebooks that comply with the PC Card (PCMCIA) standard

- HEADSET INCLUDED
- FREE COPY OF SYMANTEC WINFAX V8.0



Netcomm Roadstar II Ultra 56K

The Roadster II 56 Ultra SVD is a voice/data/fax modem which lets you transmit and receive faxes and data directly from your desktop. It comes bundled with industry leading software enabling you to get started in minutes and of course its speed of 56Kbps makes the Roadster II 56 Ultra SVD very fast. In short, the Roadster II 56 Ultra SVD is a great value package to suit the online gamers, the small office user and the Internet power user. Its ease of use also makes it ideal for the first time user. The USB version goes further eliminating the need for the a power supply.

FMNET012 **$259** SERIAL

FMNET015 **$275** USB

Netcomm Card Modem 56K Global GSM



Gives the world traveller the freedom of data connection either through a land line or mobile phone (GSM), with data download speeds of up to a scorching 56,000bps as well as the ability to send and receive faxes of up to 14,400bps. Winfax included

$345 FMNET017

WORD WIDE COMPATIBILITY

Netcom CardModem 56k+Ethernet **$309** FMNET008

Banksia Wave SP



The Wave SP 56 supports both V.90 and K56flex standards to ensure you have no disruptions to your 56K modem connections. A smart answerphone facility provides multiple mailboxes for up to 9 people. Voicemail messages can also be accessed remotely so you don't have to be in the office to receive your faxes.

- SVD Technology
- Full Duplex Speakerphone allows you to use your PC just like a telephone

$235 FMBAN003

Sales staff are available (est) 9am-6pm Monday to Friday, 10am-4pm Saturday
Technical Support (5 Days a week 9am-6pm) Phone (02) 8344 3160

Sales Hotline 02 8344 3190

RESELLER ENQUIRIES WELCOME *Please read our Terms and Conditions

MITSUBISHI ELECTRIC
EXCELLENCE THROUGH INNOVATION

Monitors

3 YEAR ON SITE WARRANTY*



Diamond Plus 72 Diamondtron 17"

HOT SPECIAL

$845 MOMIT007

0.25mm Dot Pitch

High-contrast, flat-square CRT with anti-reflection, anti-glare, and anti-static

16" Maximum viewable

Max Resolution 1600 x 1200 at 65Hz

OSD Contrast, 15 pin mini D-Sub & Apple Macintosh Signal Adaptor Included

Mitsubishi Diamond View 1554 15"



- Advanced Plug & Play
- Superior image fidelity 0.28 Dot Pitch
- 13.6" True viewable
- Maximum Resolution 1024x768 up to 65Hz

$325 MOMIT003

Mitsubishi Diamond View 1772E 17"



- Advanced PnP compatibility
- 15.9" True Viewable
- Maximum Resolution: 1280x1024 up to 60Hz
- Superior image fidelity 0.27Dot Pitch

$595 MOMIT002

Mitsubishi Diamond Plus 71 17"



- DIAMONDTRON Monitor, with the super-fine aperture grille pitch of 0.25mm Dot Pitch
- 16.0" True viewable
- Maximum Resolution 1280x1024 up to 65Hz

pc world BEST BUY

PC & MAC Compatible

HOT SPECIAL **$695** MOMIT001

Diamond View 1995 19"



PRICE DROP

- High contrast 19" picture tube with 18" viewable.
- 5 user selectable and adjustable colour temperatures.
- Flicker free high-resolution images 1600 x 1200 pixels at 75 Hz refresh rate.

$1225 MOMIT005

Diamond View 2107 21"



- 0.26mm Dot Pitch
- 20" Viewable High Contrast Flat Screen
- Max Resolution 1600 x 1200 at 80Hz
- OSD Contrast, 15 pin & BNC output
- Excellent Choice for CAD, Design and multimedia applications

VALUE

$2095 MOMIT006

Storage

The new standard in diskette storage.



Code	Model	Price
MMMIT003	Mitsubishi Diamond Data 36X CD-ROM	$95
MMMIT001	Mitsubishi Diamond Data 40X CD-ROM	$105



Code	Model	Price
BUMIT000	Mitsubishi LS – 120 – 120MB Capacity.	$169

Mitsubishi LS-120 FACTS:

- Large storage capacity of 120MB in a single LS-120 diskette.
- 100% compatibility with existing 3.5" diskette media

BUMIT001	120MB capacity diskettes to suit LS – 120 Drive	$25

Code	Model	Price
FDMIT000	Mitsubishi Diamond Data 1.44MB Floppy disk drive.	$36

Keyboards

Mitsubishi Diamond Touch Ergonomic Keyboard



$49 IOMIT001

Mitsubishi Diamond Touch Economical Keyboard



$30 IOMIT000

INTERNET WEB SITE:
http://www.adelong.com.au
e.mail: info@adelong.com.au

HEAD OFFICE & SERVICE
54 Rosebery Avenue
Rosebery NSW 2018
Ph: (02) 8344 3188
Fax: (02) 9697 9777

CITY OFFICE
127 York Street
Sydney NSW 2000
Ph: (02) 9267 5272
Fax: (02) 9267 5042

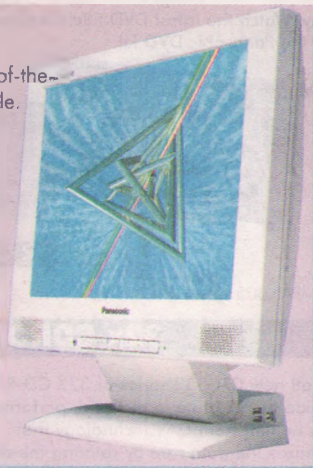
Monitors

Panasonic

Panasonic's NEW Digital technology sets the standards for Top performing high-end monitors. All monitors feature true-type colours, excellent focus and convergence, power saving functions and crystal clarity in colour display.

PanaFlat LC50

15" colour monitor with state-of-the-art design creating a slim profile.



Specifications

- 15" flat screen monitor
- 0.297mm dot pitch
- Built in Multimedia Speakers
- On-Screen display controls
- 1024x768 max.res.
- 15" viewable area

PRICE DROP

$2299 MOPAN013

PanaSync SL70

17" Digital Multiscan colour FST display. The monitor that's very sharp and compact in size.



Specifications

- 17" flat screen monitor
- 0.27mm dot pitch
- Advanced anti-glare, anti-static coating
- On-Screen display controls
- 1280x1024 at 65Hz.
- 16" viewable area

$785 MOPAN003

PanaSync E70 17"
$645 MOPAN010

PanaSync™ E50i 15"
$345 MOPAN008

PanaSync SL90

19" monitor with a large 18" true viewable area. Super sharp and compact in size.



Specifications

- 19" flat screen monitor
- 0.25mm dot pitch
- Advanced anti-glare, anti-static coating
- On-Screen display controls
- 1600x1200 max.res. at 75Hz
- 18" viewable area

PRICE DROP

$1375 MOPAN011

PanaSync S110

The 21" monitor that takes brightness to a new level and places its focus on high image quality.



Specifications

- 21" flat screen monitor
- 0.25mm dot pitch
- Anti-glare, anti-static coating
- On-Screen display controls
- 1600x1200 max.res.
- 20" viewable area

$2135 MOPAN001

Monitors

Videocom

Model	17"DC-770BA	17"DC-770LAT	19" DA-995
Screen Size	16" Viewable	16" Viewable	18"Viewable
Dot Pitch	0.27mm	0.25mm	0.25mm
Max Resolution	1280 x 1024 N/I	1280 x 1024 N/I	1600 x 1200 N/I
User Control	OSD	OSD	OSD
Price	**$495** MOVID000	**$575** MOVID002	**$949** MOVID001



17"DC-770
$495
MOVID000

HOT SPECIAL

19" DA-995
$949
MOVID000

3 YEAR ON SITE WARRANTY*

*QUEENSLAND, NSW, VICTORIA ONLY

Sales staff are available (est) 9am-6pm Monday to Friday, 10am-4pm Saturday
Technical Support (5 Days a week 9am-6pm) Phone (02) 8344 3160

Sales Hotline 02 8344 3190

RESELLER ENQUIRIES WELCOME *Please read our Terms and Conditions

Drives

Teac 12x4 CD Recorder

The new CD-R55S from TEAC offers all the advantages of true 4X write performance. It takes just fifteen minutes to create a typical 650MB CD - only half the time of a 2X writer. This means you'll spend less time burning discs and more time creating multimedia content



SCSI retail kit includes Adaptec SCSI card, cables and CD-R software and media.

MMTEA004 **$599** Retail Kit
MMTEA002 **$515** SCSI DRIVE

Panasonic DVD Kit

DVD technology brings a whopping 8 GB of data per disk to your desktop today. Watch the latest DVD titles or play the latest multimedia and games with the Panasonic DVD kit.



MMPAN006 **$355** (DVD Drive & MPEG Decoder)
MMPAN005 **$275** (DVD DRIVE)

Panasonic 8x4x CD-Recorder

Reliability with this 4x recorder. This Panasonic recorder will also read at a sustained 8x rate. The kit includes recording software and a PCI SCSI card. Everything you need to get up and running.

CD-Recordable Drive Kit, 4-speed write/8-speed read bundles with software & SCSI interface



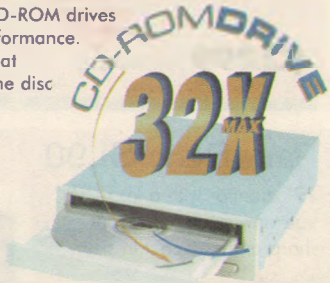
CD-R Blank Disk
MMRICI004 **$3**

MMPAN003 **$675** (OEM KIT)
MMPAN004 **$525** (BARE DRIVE)

32x CDROM Drive

The all new CD-532 series of 32X CD-ROM drives provide the ultimate in playback performance. They benefit from CAV technology that optimizes the data rate by rotating the disc at a constant speed.

Available in both SCSI & ATAPI interfaces.

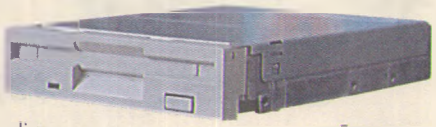


MMTEA001 **$99** ATAPI IDE
MMTEA003 **$189** SCSI

Panasonic LS-120 Drive

This drive will read and write the new LS-120 super floppy disk. It also can read/write existing 1.44Mb 3.5" floppy disk. This drive uses the ATAPI interface and is bootable with a current BIOS.

- Lage storage cap. of 120MB in a single LS-120 diskette
- 100% compact. with existing 3.5" diskette media
- Bootable with BIOS



BUPAN000 **$169**

LS-120 Disk
BUIM001 **$25**

Panasonic 32x/24x SCSI CD-ROM

Panasonic 32x CD-Rom
This internal ATAPI 32X lets you transfer data and load applications faster than ever, Super fast performance for games and multimedia applications. Compatible with Windows 95/98, Windows 3.1/3.11, NT 3.5 and Higher, and OS/2 Warp. Maximum Transfer Rate 5472 Kbytes/sec and fast access time of 65ms.



$110
MMPAN002

Panasonic 24x SCSI CD-Rom
Internal SCSI CD-ROM Drive Fast 24 speed mechanism 85 msec access time. Max Data Transfer Rate 4,104 KB/sec and large 512 KB Buffer. Perfect for continuous high speed transfer. Compatibility with all major operating systems.

MMPAN001 **$169**

CTX Projector

The CTX range of EZPro Projectors bring ease and portability to making professional presentations. Connect them to sources such as PCs, MAC & video sources



HOT SPECIAL

EzPro 585

- Lightweight only 10 pounds
- TRUE 800 x 600 SVGA
- Compatible with MAC, PC & Video source
- 500ANSI lumens brightness
- Comes with remote & Carry Case

$5995 MMCTX003

EzPro 500

- 6.4" colour TFT LCD Panel
- 16.7" million colours
- 350 ANSI lumens
- 640 x 480
- 400 Watt lamp
- Speaker

$3525 MMCTX000

Call for lease options!

INTERNET WEB SITE:
http://www.adelong.com.au
e.mail: info@adelong.com.au

HEAD OFFICE & SERVICE
54 Rosebery Avenue
Rosebery NSW 2018
Ph: (02) 8344 3188
Fax: (02) 9697 9777

CITY OFFICE
127 York Street
Sydney NSW 2000
Ph: (02) 9267 5272
Fax. (02) 9267 5042

CD R/RW Drives RICOH



A single drive that does it all.
Reads, writes, Rewrites CD data.

The Ricoh MP7040 series drives have multi-function capabilities so they can efficiently handle any CD-based media from the world's first re-writable CD, Ricoh's CD-RW, to the write-once CD-R and CD-Rom. With just one drive, you can always choose the perfect media to suit your applications. Now supporting random access writing.

4X ReWrite
4 Record
20xRead MAX

$895
MMRIC005

- Complete package including everything to start writing CD-R/RW
- Adaptec Direct 2.5, Easy CD Creator software
- 2MB data buffer memory
- 120ms access time

MP6200AR (EIDE) ATAPI
$599 MMRIC001
Kit includes $35 of Media products
6x Read, 2x Rewrite

Easy and simple just like a floppy

- 4x Recording 4x Rewriting & 20x Reading
- Drag & Drop operation just like a floppy disk
- For data distribution, back up and creating original CDs

Ricoh CD-RW Disc 74 Mins 650Mb $35 MMRIC003

Ricoh CD-R Disc 74 Mins 650Mb $3 MMRIC004

UPS & Line Filters

Information stored on computers and distributed via the computer network is of vital importance for a small business. MGE UPS SYSTEMS is the first UPS manufacturer to design a range of UPS that meet the specific requirements and restrictions of small business staff and management: the price is reasonable and the package is easy to install and use.

	ES2+	ES5+	ES8+	ES11+
Power	220VA	480VA	780VA	1080VA
No DF power output	2	2	4	4
Fax/Modem line			✔	✔
Backup time for PC	5 min	23 min	44 min	78 min
Price	$349	$435	$679	$1025

ES + series for a total and manageable protection system
Plug and Play compatible, the solution - PAC 97-power management software games a powerful GUI interface to control features such as remove management and shutdown of multiply service.



	EL2	EL4	EL7
Power	220VA	450VA	750VA
No of power outputs	2	2	4
Fax/Modem Line			✔
Backup time for a PC	5 min	20 min	40 min
Price	$259	$335	$Call

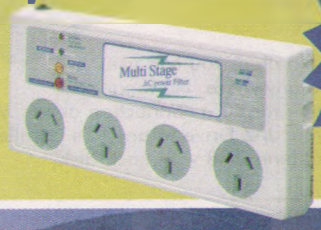
Perfect for the Soho, the EL Series offers affordable protection for your equipment.

Power Filter — Computer and equipment protection!

Protect your expensive PC equipment with these power filters.
Provides protection against Surges and Spikes,
EMI and RFI noises

Code	Model	Price
PSGEN004	ZAPTRAP - Four individually wired sockets	$140
PSGEN005	ZAPCATCHER - Telacom Line protection	$150

3 YEAR REPLACEMENT WARRANTY



Protection For:
- Multimedia Computers
- Fax Machines
- Fax Switch
- Modems
- EFTPOS Terminal
- Cash Register
- Answering

Sales staff are available (est) 9am-6pm Monday to Friday, 10am-4pm Saturday
Technical Support (5 Days a week 9am-6pm) Phone (02) 8344 3160

Sales Hotline 02 8344 3190

RESELLER ENQUIRIES WELCOME

*Please read our Terms and Condition

iomega Storage

Zip Starter Kit

Great for starters, the Zip Starter Kit contains a 100MB Parallel ZIP Drive & 4 coloured 100MB disks. An excellent choice for backing up or sharing data with others. Best of all the Zip Drive is portable and can be used anywhere!



$295 BUIOM029

Zip Drives

Increase your storage quickly, easily and economically - as you need it. With a 100MB Zip Drive you can take your data anywhere at anytime. Each disk stores 100MB of data and you can add them, as your needs grow. Available in Parallel, SCSI and Internal IDE.

$239 BUIOM4203

IDE ATAPI $195 BUIOM098

SCSI $239 BUIOM001



Zip USB Drive

For USB equipped PCs & iMACs comes the new 100MB USB ZIP Drive. Easy to install and use the USB ZIP Drive and be hotplugged & interchanged with other devices with out rebooting or configuring.



$295 BUIOM026

Zip Card ...for notebooks

The Zip Card is a PCMCIA to SCSI adaptor card that allows you to use your SCSI ZIP Drive on a notebook computer. Easy and portable solution.

$185 BUIOM022



Accessories

BUIOM012	100MB PC ZIP Disk	$23
BUIOM005	100MB PC ZIP Disk (3 Pack)	$63
BUIOM006	100MB PC ZIP Disk (10 Pack)	$190
BUIOM015	ZIP ZOOM SCSI Card	$55

Jaz 2GB Drive

The new Jaz Drives hold a whopping 2GB of data per disk. Best of all these drives are fast and backwards compatible with the industry standard 1GB disk. Stream & capture video, backup data and store images are just some of the applications that the Jaz Drive can be used for. SCSI Card needed.



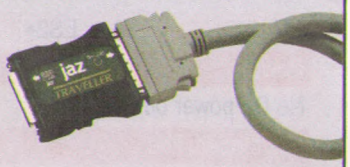
INTERNAL $699 BUIOM017

EXTERNAL $699 BUIOM018

Jaz Traveller

Jaz Traveller is a SCSI to parallel port converter. Attach your Jaz Drive to a parallel port on any PC or notebook. Excellent for those who need to exchange data with their Jaz Drive.

$85 BUIOM013



Accessories

BUIOM024	JAZ 2GB Disk	$195
BUIOM025	JAZ 2GB Disk (3 Pack)	$559
BUIOM031	JAZ PCMCIA to SCSI Converter	$215

Jaz 2GB Drive with Jaz Traveller

For a short time, the JAZ 2GB Drive is bundled with the JAZ Traveller at a special discounted price.



$715 BUIOM030

With this combination, you can use your JAZ Drive anywhere. No longer do you have to look for SCSI connection as the JAZ Traveller lets you connect your JAZ Drive to any PCs parallel port. Best of all you get a whopping 2GB with each disk.

Iomega Buz

All the hardware and software you need to be a video genius Introducing the Iomega Buz-the easiest way to get multimedia from camcorders, DVD, CD-Roms, VCRs and laserdiscs into your PC! It's a video capture and editing board combined with an Ultra SCSI controller that lets you capture Multimedia (fullmotion) video, sounds, digital pictures, music) into a PC

$359 BUIOM023

APPLE MAC $525 BUIOM027



Available in Mac format

INTERNET WEB SITE:
http://www.adelong.com.au
e.mail: info@adelong.com.au

HEAD OFFICE & SERVICE
54 Rosebery Avenue
Rosebery NSW 2018
Ph: (02) 8344 3188
Fax: (02) 9697 9777

CITY OFFICE
127 York Street
Sydney NSW 2000
Ph: (02) 9267 5272
Fax: (02) 9267 5042

DAT Backups

Seagate

Backup your data with the best in the business. We now carry a Full range of Tape and DAT backup systems from Seagate.

HORNET TRAVAN

Cost effective, Entry Level internal storage for Desktop applications, Servers and High-End Workstations.Kits Includes Seagate Backup Exec Windows 98 Version 3

Seagate Backup Exec Desktop 98 provides a powerful feature-set with the easiest-to-use interface for reliable, automated Windows 98 and Windows 95 data protection. Integrated Emergency Recovery feature rebuilds your entire system without reinstalling the operating system or the backup software. Selectively locate files with the File Find feature for specific data restores.

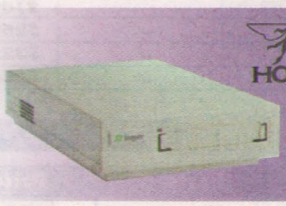
Model	STT28000N-RFT	STT28000A-RFT
Capacity	8Gb	8Gb
Form Factor/ Interface/ Standard	5.25"/3.5" H/H SCSI, Travan TR4, Tape Kit	5.25"/3.5" H/H EIDE, Travan TR4, Tape Kit
Inclusions	Seagate Backup Exec, Tape	Seagate Backup Exec, Tape
Price	**$595** BUSEA001	**$525** BUSEA000

SCORPION DAT

Highest Performance and Capacity, Low Cost, Multigigabyte Data Protection for High-End Servers and Workstations Kits Includes Windows NT Workstation Version 2

Seagate Backup Exec is comprehensive, easy to use, 32-bit data protection for Windows NT Workstations 4.0. Built-in device detection automates setup and the simple push of a button launches backups or restores. It reliably protects NetWare data, including Bindery and Trustee Information as well as guarantees consistent and reliable unattended backups with advanced Scheduling and the AutoProtect feature.

Model	STD28000N-RFT	STD68000A-RFT
Capacity	8Gb	8Gb
Form Factor/ Interface/ Standard	Internal - 3.5" / 5.25" SCSI, DDS-2 DAT tape drive.	External - 3.5" / 5.25" SCSI, DDS-2 DAT tape drive.
Inclusions	Single Server, Backup Exec S/W for NT and Netware, 2 Tapes	Single Server, Backup Exec S/W for NT and Netware, 2 Tapes
Price	**$2025** BUSEA002	**$2345** BUSEA003



All Seagate Backup systems comes with award winning software



Networking

NETGEAR

Analogue Router + 56K Modem

COMPLETE SOLUTION FOR SOHO INTERNET ACCESS

Share Internet access with your small office/home users with the RM356 Analogue Router. Using a single ISP account and phone line users can now check email, browse the Internet & download information simultaneously. Connect up to 4 computers to the RM356 or connect the RM356 to your hub for unlimited connections.

- Built in 56K V.90 modem and integrated 4 port hub
- Supports Dynamic IP, DHCP, NAT, PPP

$615
NWNGR107



RT 328 ISDN Router

The NETGEAR RT328 ISDN Router provides Internet access, LAN-to-LAN Intranet connection, and remote access for a single user, a small business, or a branch office over ISDN. The RT328 combines the latest in networking technology, found only in high-priced business models, with ease-of-use designs and a price affordable office.

- Dynamic NAT enables entire workgroup to share an Internet Connection
- Supports PPP& 128Kb MutliLink PPP, TCP/IP, RIP, CHAP
- Firewall Security & Control, Callback
- Simple configuration with Windows GUI or Telnet
- Use DHCP to assign addresses for IP Gateway, DNS for LAN
- 2 Analogue POTS, 1 10BaseT Connection

$715
NWNGR018



NETGEAR Print Servers

NETGEAR print servers enable you to connect printers to the network for sharing among multiple PCs. Compared to attaching a printer to your PC, the print server gives more cost effectiveness, better performance, and simultaneous support for Windows, Netware, and UNIX printing.



- **PS104AU**

Perfect for the SOHO user the PS104 supports 1 Parallel printer and up to 4 PCs via its built in 4-port 10Mbps Ethernet hub. Connect the PS104AU to a hub for unlimited connections.

$315 NWNGR000

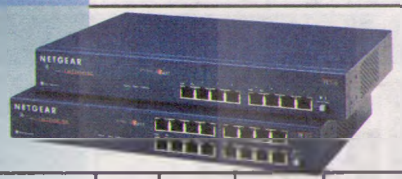
- **PS110AU**

Connect up to 2 Parallel printers to the PS110AU. Attach the PS110AU to any 10/100Mbps network.

$395 NWNGR001

Ethernet Hubs

Choose from a range of 10Mbps and 100Mbps Ethernet Hubs



Code	Description	10Mbps	100Mbps	Rackmount	Price
NWNGR007	EN116AU 16 Port Hub with BNC	✔			$215
NWNGR012	ED516AU 16 Port Hub with BNC	✔		✔	$295
NWNGR013	EN516AU 24 Port Hub with BNC	✔		✔	$415
NWNGR014	DS108AU 8 Port Dual Speed Hub	✔	✔		$435
NWNGR019	DS516AU 16 Port Dual Speed Hub	✔	✔		$1175
NWNGR020	DS524AU 24 Port Dual Speed Hub	✔	✔		$1615

Sales staff are available (est) 9am-6pm Monday to Friday, 10am-4pm Saturday
Technical Support (5 Days a week 9am-6pm) Phone (02) 8344 3160

Sales Hotline 02 8344 3190

RESELLER ENQUIRIES WELCOME *Please read our Terms and Condition

AMERICAN EXPRESS · bankcard · MasterCard · VISA · eftpos

Adelong Computers

D-Link Networking

Ethernet NICs



$56 NWDLI002

Ensure your future network upgrades are catered for with this 10/100 auto-negotiating network adapter. Plug & Play support for trouble free installation.



$199 NWDLI006

The ideal kit for beginners or enthusiast looking to set up a network. Includes 2 x 10Mbps Network cards, 2 x 7m CAT 5 cable & a 5 Port hub for future expansion.

Item Code	Model	Bus	Speed	Price
NWDLI000	DE-220PCT	ISA	10Mbps	$35
NWDLI001	DE-528CT	PCI	10Mbps	$40
NWDLI026	DE-500TX	PCI	10/100Mbps	$85

Ethernet & Modem PC-Cards



DMF-560TX PCMCIA 10/100Mb LAN & 56 Modem PC Card.

- V.90 K56 Flex Fax/Data/Modem.
- Compatible with 10 & 100Mbps Networks

$425 NWDLI025

Item Code	Model	Description	Price
NWDLI003	DE-660CT	10Mbps PCMCIA Ethernet Card	$110
NWDLI013	DFE-650TX	10/100Mbps PCMCIA card	$225

Print Servers



Turn any printer into a network printer through D-Link's range of print servers. Just plug in your printer and connect the print server to your Network hub via Ethernet. Compatible with Win NT/ 95/ 98, UNIX, TCP/IP, NetBEUI, IPX & Appletalk Protocols. 10/100Mbps Enabled

$429 NWDLI015

Item Code	Model	Printers Supported	Price
NWDLI015	DP-300	2 x Parallel, 1 x Mb	$429
NWDLI023	DP-101	1 x Parallel, 10Mbps	$275

Fax/Modems



D-Link's range of Fax/Modems are V.90 &K56 Flex compatible utilising the high performance Rockwell chipset.

$135 INTERNAL NWDLI000

Item Code	Model	Description	Price
FMDLI000	DFM-560I	56K Internal Modem	$135
FMDLI001	DFM-560E	56K External Modem	$165
FMDLI002	DFM-MAC	MAC connectivity kit with software, cables for 560E	$49

Internet Servers



The DP-602 makes connecting your LAN to the Internet easy than ever by sharing one ISP Account with all users. Features include NAT, Dial-on-demand, DHCP and PPP. Support for both analogue modems and BRI ISDN T/A the DP-602 also allows the use of both COM ports for double bandwidth.

$495 NWDLI027

Ethernet & Fast Ethernet Hubs

D-Link's range of hubs provide easy connectivity options for Ethernet users as well as a cost effective way to upgrade to Fast Ethernet networks.

10Mbps Ethernet Hubs

Item Code	Model	Ports	BNC / AUI	Price
NWDL017	DE-805TP	5 UTP		$99
NWDL004	DE-809TC	8 UTP	BNC	$149
NWDLI028	DE-809TP	9 UTP		$149
NWDLI029	DE-810TAC	8 UTP	✔	$269
NWDLI005	DE-816TP*	16 UTP	✔	$325
NWDLI030	DE-824TP*	24 UTP	✔	$485

100Mbps Fast Ethernet Hubs

Item Code	Model	Ports	Price
NWDL031	DFE-816STX	16	$1095

10/100Mbps Nway Dual Speed Hubs

These Dual Speed Hubs provide a network that is compatible with a mixture of 10Mbps & 100Mbps users.

Item Code	Model	Ports	Stackable	Price
NWDLI027	DFE-904	4		$226
NWDLI012	DFE-908X	8	✔	$735
NWDLI014	DFE-916DX	16	✔	$1195
NWDLI020	DFE-2624X*	24	✔	$2025

*Rackmount 19"

Ethernet & Fast Ethernet Switches



For a cost effective solution aimed at reducing network congestion look to D-Link's range of switches for improving network performance.

DES-1008 8x10/100NWAY

$1645 NWDLI022

Item Code	Model	Ports	10Mbps	100Mbps	Price
NWDLI011	DES-810	10	8	2	$859
NWDLI021	DES-815	15	12	3	$1195
NWDLI032	DES-1016	16	✔	✔	$2121
NWDLI022	DES-1008	8	✔	✔	$1645

INTERNET WEB SITE:
http://www.adelong.com.au
e.mail: info@adelong.com.au

HEAD OFFICE & SERVICE
54 Rose[illegible] Avenue
Kingsbury NSW 2010
Ph: (02) 8344 3188
Fax: (02) 9697 9777

CITY OFFICE
127 York Street
Sydney NSW 2000
Ph: (02) 9267 5272
Fax: (02) 9267 5042

Printers Canon



BJC-50 PRCAN020 $585

- Half the size of the BJC-80 but not half the performance.
- Featuring a InfraRed Port and Lithiumlon Battery which is good for 100 A4 prints.
- Maximum resolution of 720dpi at up to 5.5ppm
- Snap in the optional scanner head for 360dpi full colour scanning.

PRCAN001 **$137**
Scanner head

PORTABLE



BJC-80 PRCAN000 $345

- Drop Modulation Technology - the dual drop size breakthrough that ***produces smoother colour gradations.***
- Office laser quality finish & B&W speeds up to 5 pages per min. with dedicated black cartridge.
- Windows® 95 compatible IrDA infrared port for cable-less communications.

PRCAN001 **$137**
Scanner head



BJC-4310SP PRCAN021 $209

NEW IMPROVED SUPER ECONOMY MODE

- drop modulation technology uses dual drop sizes for smoother colour graduations with standard and photo realism inks.
- optional photorealism inks for photo gold standard printing.
- speed black cartridge prints up to 4.5 pages / minute.



PRICE DROP

BJC-255SP PRCAN017 $145

- Super Economy mode for colour and B&W.
- New high capacity black cartridge 20% more ink, no extra cost.
- Up to 5 times the output of direct competitors.



BJC-5000 PRCAN022 $523

- 1440 dpi resolution for photographic reproduction
- A3 capable via manual feed
- 7 colour photo inks
- The dual cartridges print up to 7.5 pages per minute in black and up to 3 pages per minute in colour.
- 130 Page sheet feeder

new



BJC-7100 PRCAN012 $523

- 1200 DPI
- 8ppm Black and 5ppm colour
- 7-colour ink system and 9 saturation incredibly rich photographic half-tones.
- P-POP (Plain Paper Optimised Printing) gives plain paper a coated paper quality finish.
- 130 Page sheet feeder

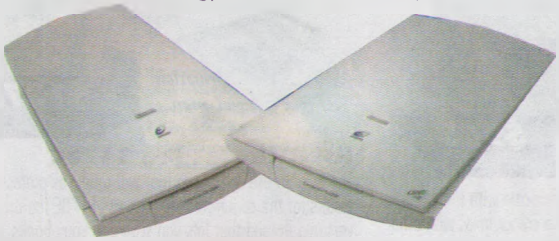


LBP-660 PRCAN011 $515

- High Speed 6ppm engine
- 600 DPI for quality to rival its more expensive competitors
- 100 sheets automatic feeder
- Windows Printing System and PCL4.

FB320P IOCAN002 $175

All the advanced technology of the 620P at 300 dpi



FB620P IOCAN003 $265

It takes up less desktop real estate than any other colour flatbed scanner on the planet yet still ***delivers exceptional 600 dpi scanning.***

- Optical Resolution 600 dpi
- Maximum Resolution 2400 dpi x 2400dpi
- 30 bit Colour

PowerShot A5 IOCAN004 $975

PRICE DROP

- The new Canon PowerShots A5 is everything you've always wanted from a digital camera. In fact, it's the smallest digital camera ever engineered with 1024 x 768 (XGA) resolution.
- Complementing its ultra-sensitive, high resolution CCD, the PowerShot A5 comes with a high-quality, low-distortion, all-glass lens, ensuring consistently sharp images. Plus, the unique Stitch Assist mode makes it easy to create dramatic panoramas.



CALL FOR COMPLETE RANGE OF CANON INKS AND CONSUMABLES

Sales staff are available (est) 9am-6pm Monday to Friday, 10am-4pm Saturday
Technical Support (5 Days a week 9am-6pm) Phone (02) 8344 3160

Sales Hotline 02 8344 3190

RESELLER ENQUIRIES WELCOME *Please read our Terms and Conditions

HEWLETT PACKARD

Printers

HP LaserJet



HP LaserJet 1100 $799 PRHPD041

Excellent for the home or small office, the HP 1100 produces stunning results whilst offering expandability and excellent value for money. JetPath technology allows you to upgrade the HP 1100 to include a scanner at any time.

Item Code	Description	Price
PRHPD046	1100A with Printer, Copier, Scanner - All in one	$965



HP LaserJet 2100 $1425 PRHPD047

Introducing the latest HP 2100 series of LaserJet printers. Great for workgroup computing the HP 2100 features a print resolution of 1200dpi, 10ppm output, 350-sheet feeder & a monthly print cycle of 15,000 pages.

Item Code	Description	Price
PRHPD048	2100M with 8MB RAM, Postscript	$1595
PRHPD049	2100TN with 8MB RAM, Network ready, Ps.	$1925



HP LaserJet 4000 $2265 PRHPD026

For departmental printing where speed is a must, look no further than the HP 4000 LaserJet. Featuring a 100Mhz RISC processor which outputs 17ppm at 1200dpi the HP 4000 also comprises a 500 sheet input tray. Warm up time is a mere 15 seconds. Postscript L2 & PCL supported.

Item Code	Description	Price
PRHPD050	LaserJet 5000, 16ppm, 1200dpi Postscript, A3	$2945

HP DeskJet



HP Deskjet 695 $265 PRHPD042

Featuring the latest in colour printing technology with Colour Smart II. Easy to use & install the Deskjet 695 will output 5ppm in black or 1.7ppm in colour at 600dpi.



HP Deskjet 710C $335 PRHPD040

Want photo quality printing that wont cost the earth. Then the HP 710C is your ideal partner. Print black at 6ppm and colour at a staggering 3ppm. This stylish yet practical printer will handle a variety of papers including envelopes & cards.



HP Deskjet 880C $569 PRHPD051

Super-fast printing and stunning results on plain paper is what to expect from the new HP 880C. Your black text will look more laser like than every before while your colour prints will bring life to your documents & images. The HP 880C is no slouch either. Output is rated at 8ppm in black & 2ppm in colour. USB and Parallel interface.

HP All-in-one



HP OfficeJet 635 $789 PRHPD033

The OfficeJet 635 is an integrated fax, Colour printer, colour copier & colour scanner - all in one.

Print: 600dpi at 5ppm in black & 2ppm in colour
Fax: Plain paper fax & 20 page document feeder
Scan: 1200dpi enhanced with OCR software
Copy: Resizable colour copying or B&W copies independent of the PC.



HP OfficeJet 710 $965 PRHPD034

With the Officejet 710 you can communicate with the world completely in colour! Send and receive colour faxes with other colour fax machines as well as printing, scanning and copying in colour. In addition communicate with others over email using the colour scan-to-email feature.

Print: 600dpi at 5ppm in black & 2ppm in colour
Fax: Plain paper fax & 20 page document feeder in colour
Scan: 1200dpi enhanced with OCR software
Copy: Resizable colour copying or B&W copies independent of the PC.



HP OfficeJet Pro 1170C $1375 PRHPD035

The easy to use All-in-one that will produces professional results for the corporate user. The HP 1170C features a versatile flatbed that lets you scan and copy books, posters, brochures and various other media.

Print: 600dpi at 9ppm in black & 5ppm in colour
Fax: Plain paper fax
Scan: 1200dpi enhanced with OCR software
Copy: Resizable colour copying or B&W copies independent of the PC. Superzoom, auto enlarge and clone features.

INTERNET WEB SITE:
http://www.adelong.com.au
e.mail: info@adelong.com.au

HEAD OFFICE & SERVICE
[illegible]
Bexley NSW 2016
Ph: (02) 9344 3188
Fax: (02) 9697 9477

CITY OFFICE
127 York Street
Sydney NSW 2000
Ph: (02) 9267 5272
Fax: (02) 9267 5042

Printers

EPSON

STYLUS COL. 740

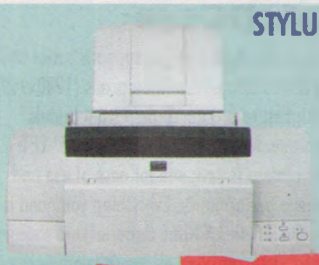
PC/MAC COMPATIBLE



EPSON Stylus 740 is targeted at business/corporate and professional graphics users. Designed for both Microsoft and Macintosh, the EPSON Stylus COLOUR 740 also features optional network connectivity. Printing at 1440 x 720 DPI and a maximum of 7ppm the Stylus 740 eclipses many desktop laser printers whilst providing unrivaled photo reproduction

$495 PREPS021

STYLUS PHOTO EX A3



The Epson Stylus Photo EX is the perfect printer for photo reproduction, pre-proof graphics. Industry-leading 1440dpi resolution with a six-colour ink system and A3 paper handling.

$769 PREPS015

BONUS INK & PAPER FREE
BUY THE EPSON STYLUS PHOTO EX NOW & RECEIVE 2 ADDITIONAL CARTRIDGES & A PACK OF PHOTO QUALITY PAPER
FREE
WHILE STOCKS LAST

EPSON STYLUS COLOUR 440



The EPSON Stylus COLOUR 440 is a remarkable new printer that produces dazzling, photo-quality right out-of-the-box! The EPSON Stylus COLOUR 400 features photo-quality output with print resolutions of up to 720 x 720 dpi on plain paper.

$245 PREPS019

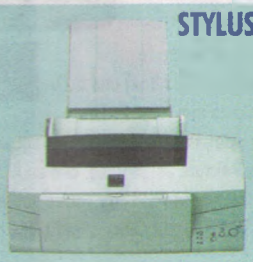
STYLUS COL. 640



1440X720 DPI, 3PPM,With its remarkable 1440 x 720 dpi capability, the Epson Stylus COLOUR 640 sets a new standard for cost-efficient, photo-quality colour printing without the need for expensive options.

$320 PREPS020

STYLUS PHOTO 700



The Epson Stylus Photo 700's dazzling Photo Reproduction Quality output is made possible by a six-colour ink system. It offers the Highest image quality of any home user ink jet printer available today.

$429 PREPS011

Scanners

UMAX



Astra 1220 *series* - Includes Adobe PhotoDeluxe

The Affordable 36 bit professional scanning solution

The Astra 1220 series was designed specifically for corporate or small office users who want something more from their scanner. Built with a 36 bit colour CCD, the Astra 1220 captures an amazing 68.7 billion colours to bring all your images to life. A complete range of easy to use software is included with the 1220, making it a versatile tool for any user. Perform OCR with astonishing accuracy or scan images to add a splash of colour to your documents. The opportunities are endless with the UMAX Astra 1220.

- 1200 x 600dpi optical resolution for crisp, vibrant images
- 9600dpi max. resolution for smooth lineart & image magnification
- A 36 bit colour depth captures 68.7 billion colours
- A4 scanning area (216 x 297mm)
- Single pass colour CCD for fast, productive scanning

122OS **$495** SCSI IOUMA005

122OU **$345** USB iMac compatible IOUMA006

122OP **$279** PARALLEL IOUMA00

Astra 610 *series*

The compact plug 'n' play colour scanner for home and office users

Add the colour and vitality of images to everything you do on your computer with a new Astra 610 series scanner. After plugging it in and installing the software, simply press the 'on' button at the front of the scanner and you're ready to go - it's that easy!



- 600 x 300dpi optical resolution for crisp, vibrant images
- 4800dpi max. resolution for smooth lineart & image magnification
- Captures over 1 billion colours through 30 bit scanning
- A4 scanning area (216 x 297mm)
- Single pass colour CCD for fast, productive scanning
- Extensive software package handles all your creative and scanning needs

610P **$145** IOUMA002 PARALLEL

610S **$279** IOUMA003 SCSI

SCSI Interface Included

Sales staff are available (est) 9am-6pm Monday to Friday, 10am-4pm Saturday
Technical Support (5 Days a week 9am-6pm) Phone (02) 8844 3150

Sales Hotline 02 8344 3190

RESELLER ENQUIRIES WELCOME

*Please read our Terms and Conditions

Digital Cameras

Kodak's new digital cameras boast high resolution and great features.

Kodak DC200plus

The KODAK DC210plus Digital Camera gives you the power to capture amazing, high quality images (1152 x 864) with vivid colour and enough dazzling detail for photo-realistic 5" x 7"prints. With a focus-free lens, auto-exposure and white balance, easy-to-use graphic interface and mode dial, built-in flash with red eye reduction, self-timer and all the ease of a pocket-sized, point-and-shoot camera, you won't miss a single, sensational shot. The DC200plus camera also comes with a 8Mb picture card for removable storage of up to 120 pictures. Instantly review your images on the integrated, colour LCD display to keep just the shots you want. Then, simply drag-and-drop images from the camera right into popular, computer software applications or view (PAL/NTSC) images on TV.

IOKOD000 **$825**



Kodak DC210plus

The DC210 Plus is the most advanced, most affordable and easiest-to-use digital camera in its class. It delivers spectacular detail, colour, and sharpness thanks to megapixel technology (1152 x 864) and a 2X wide-angle zoom lens, equivalent to 29-58 mm on a 35 mm camera. The DC210 Plus also has the user-friendly features you want, including greater storage capacity with an 8 MB Picture Card, the Date Stamp option to add the date to each picture's digital file, and an AC adapter right in the box. The colour LCD allows you to review/preview pictures instantly so you know you've got the shot you wanted. We've taken the award-winning, highly successful DC210 Zoom Digital Camera and made it even better!

IOKOD001 **$1095**



IOKOD002 **$1395**

Kodak DC240

The latest from the Kodak range, supports serial and USB transfer. Featuring 1.3 million pixels (1280x960), this is the highest resolution camera from Kodak. Features an auto focus 3x zoom lens and 1.8" TFT screen. This camera is designed for ease of use and superior image performance. Everything you need is included in the kit, 4x AA Nimh batteries and charger, 8Mb Compact Flash card and all the software needed. All serial and USB cables are included, even a TV output cable is included so you can preview your images on a television. For the latest in digital imaging, this camera is the one to get.

Scanners

HEWLETT PACKARD

HP ScanJet 3200C

The new HP ScanJet 3200C colour scanner is HP's most affordable scanner. It features high optical resolution of 600 dots per inch and ease of use via HP's Intelligent Scanning Technology. Simple Parallel Port connection means no hassles installation and setup.

Specifications:

- Connectivity: Parallel Port Pass through
- Colour: Colour & Monochrome
- Resolution: 600 dots per inch, 9600 dots per inch enhanced
- Colour: 30-bit
- HP's PrecisionScan LT



IOAHD020 **$195**

HP ScanJet 4200C

The new HP ScanJet 4200C colour scanner is designed to simplify colour scanning. With push-button scanning and push-button colour copying, anyone can get great results with the HP ScanJet 4200C. The Universal Serial Bus (USB) means effortless, trouble-free installation and use. All at a truly affordable price.

Specifications:

- Connectivity: Conflict-Free USB
- Colour: Colour & Monochrome
- Resolution: 600 dots per inch Hardware Super Sampling, 9600 dots per inch enhanced
- Colour: 36-bit
- HP's PrecisionScan LT



IOAHD021 **$385**

HP ScanJet 5200C

The HP ScanJet 5200C colour scanner is the only scanner that simultaneously scans and optimizes photos, text, and line art. HP's exclusive Intelligent Scanning Technology makes scanning easy for everyone. Scan an entire page 2-3 times faster than with other scanners!

Specifications:

- Connectivity: USB and Parallel Port Pass through
- Colour: Colour & Monochrome
- Resolution: 600 dots per inch Hardware Super Sampling, 9600 dots per inch enhanced
- Colour: 36-bit
- HP's PrecisionScan



IOAHD022 **$485**

HP ScanJet 6200C

Productivity means completing your task quickly -with the quality you need. With the HP ScanJet 6200C Professional Series colour scanner, you can be up to 4 times more productive than with comparable scanners.

Specifications:

- Connectivity: USB and SCSI (SCSI card and Cable not supplied)
- Colour: Colour & Monochrome
- Resolution: 1200 dots per inch Hardware Super Sampling, unlimited enhanced resolution
- Colour: 36-bit
- HP's PrecisionScan Pro



IOAHD014 **$765**

INTERNET WEB SITE:
http://www.adelong.com.au
e.mail: info@adelong.com.au

HEAD OFFICE & SERVICE
54 Rosebery Avenue
Rosebery NSW 2018
Ph: (02) 8344 3188
Fax: (02) 9697 9777

CITY OFFICE
127 York Street
Sydney NSW 2000
Ph: (02) 9267 5272
Fax: (02) 9267 5042

Input



Video conference and send images or movies over the internet CD-Rom full of editing, capturing, and emailing pictures and videos included.



Logitech

ADELONG australia

Adelong Computers

Logitech QUICKCAM VC
PC Video Camera



- Affordable videoconferencing solution
- Capture still images and video clips in colour
- Easy to install and use
- USB or parallel port versions
- Works with Windows 95 and Window 98

Logitech QuickCam VC is the affordable videoconferencing solution that brings the excitement, immediacy, and expressiveness of video communications to your desktop.

PARALLEL **$170** IOLOG013 USB **$170** IOLOG014

Logitech QUICKCAM HOME
PC Video Camera



- Capture full-colour, full-motion video and sharp, still images
- Build-in microphone for natural communication
- Plug & play USB/Window 98
- 320x240 at 25fps capture
- 640x420 still image capture

Logitech QuickCam Home was designed with camcorder technology and advanced compression to deliver sharp still images, and enhance video quality at up to 30 frames per second.

$265 IOLOG015

Logitech QUICKCAM PRO
PC Video Camera



- Larger, more vibrant pictures
- Videoconferencing, video e-mail, web pages and more
- Tilt/swivel base with built-in clamp
- Parallel and USB compatible

The Logitech QuickCam Pro captures image at a true 640 x 480 resolution. That's 3 times the resolution of standard 352x288 size cameras. QuickCam Pro also captures in 30-bit colour.

PARALLEL **$279** IOLOG016 USB **$279** IOLOG017

CONVENIENT HYPERJUMP AND CYBERJUMP FEATURES

You can also assign a button for Logitech's Hyperjump and Cyberjump features, in Window 95/98. Hyperjump moves eight frequently-used Windows 95 commands included open, close, resize and minimize directly to your curso. Cyberjump gives you instant one-click access to eight popular Web surfing commands, including create a bookmark, go to a bookmark, move back a page, and more.

THE ADVANTAGE OF OPTICAL MARBLE SENSING TECHNOLOGY

Patented optical Marble sensing technology eliminates the moving parts of mechanical trackballs. A laser-like beam illuminates dots printed on the ball, while an optical sensor tracks the motion. This gives you precision, reduces wear, and ensures smooth tracking, even if the ball gets dirty or scratched.

FIRST MOUSE+

YOUR BEST VALUE ON A ZOOMING/SCROLLING MOUSE



Logitech First Mouse+ gives you the advantage of Logitech's unique wheel button in a comfortable mouse you can use with either hand. Use the wheel button as both a fully-functional mouse wheel for scrolling and zooming and a third, customizable, mouse button.In addition to scroll and zoom, MouseWare software makes it simple to customize First Mouse+ buttons with one-click commands.

IOLOG007 **$49**

MOUSEMAN+

DESIGNED FOR PERFORMANCE AND COMFORT

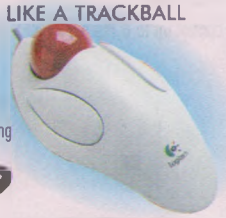


MouseMan+ was designed with humans in mind. Textured grip make it easy to hold and use. In addition to the handy thumb button, three buttons on top fall under your fingers for easy clicking and using the wheel. Logictech MouseMan+ combines an innovative new design with a wheel button that lets you work better in all your Windows 95/98 applications.

IOLOG008 **$95**

MARBLE MOUSE+

FITS YOUR HAND LIKE A MOUSE, WORKS LIKE A TRACKBALL



Logic Marble Mouse brings together the unmatched precision of Marble technology with the fit you love in a mouse and the convenience of a trackball. This innovative mouse provides comfortable curves while letting you move on-screen by simply rotating your desk. Comfort and control for left and right hands.

IOLOG009 **$89**

TRACKMAN MARBLE+ THUMB-OPERATED

SCROLL AND ZOOM WITH MARBLE PERFORMANCE

NEVER USE SCROLL BARS AGAIN



With the scrolling wheel, you can scroll from whenever your cursor rests in any Windows 95/98, Windows NT 4.0, or Internet application without having to move over to the scroll bars. Award-winning MouseWare software makes it simple to personalize your performance by assigning one-click commands to the TrackMan Marble+ buttons.

IOLOG010 **$120**

INTERNET KEYBOARD

PC KEYBAORDS FOR FAST WEB NAVIGATION

WEB BROWSER CONTROL AT YOUR FINGERTIPS



The Logitech Internet keyboard puts all your favourite Web commands, applications, and sites right at your fingertips. This is a complete solution that provides all the functionality you want for entering text into your favourite applications, controlling your computer, and making the most of your on-line time.

IOLOG011 **$75**

NEWTOUCH COMPACT KEYBOARD

COMPACT, COMFORTABLE KEYBOARD WITH INTERNET ACCASS



The Logitech NewTouch Compact keyboard combines a comfortable split contoured key layout with a space-saving design that fits easily into your work environment. This complete Keyboard solution provides ultra-responsive, full-sized keys; convenient Windows Hot Keys; one-key Internet access; and a detachable plam rest.

IOLOG012 **$95**

Sales staff are available (est) 9am-6pm Monday to Friday, 10am-4pm Saturday
Technical Support (5 Days a week 9am-6pm) Phone (02) 8344 3160

Sales Hotline 02 8344 3190

AMERICAN EXPRESS · bankcard · MasterCard · VISA · eftpos

RESELLER ENQUIRIES WELCOME *Please read our Terms and Conditions

Data Switches

CPU SWITCH

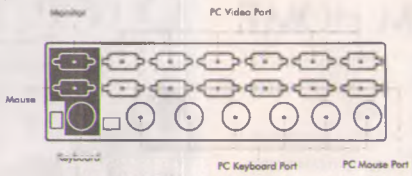
The most economical way to control multiple computers and servers from a single console. Never again will you need multiply monitors, keyboards and pointing devices with the range of CPU Switching devices. A single keyboard, mouse and monitor can control up to 8 computers simultaneously without any cable changes. These CPU Switches are digital and require only the push of a button. Excellent for network administrators or anyone who wishes to control 2 or more computers hassle free!

Features: • Supports Mouse/KB emulation for automatic bootup • Supports VGA, SVGA & Multisync monitors • LED's give current status • Easy to install & use

AT CPU Switches

for computers with serial mice & DIN Keyboard interface

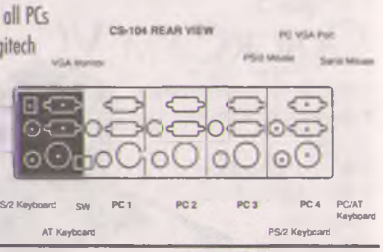
- Supports Serial Mouse, 5DIN keyboard, standard 15PIN VGA connector
- Use hot keys (kb) or buttons to switch between computers
- Auto Scan for monitoring PC periodically
- VGA Bandwidth of 100Mhz
- Support up to 1024 x 768 Mhz @85Hz



AT and PS/2 CPU Switches

catering for all computers

- Use PS/2 or AT peripherals to control all PCs
- Supports Microsoft Intellimouse & Logitech Mouseman
- Autoscan mode to automatically scan switch between Pcs
- LEDs give current mode status
- CS-122 requires the input device to be PS/2 else convertor required

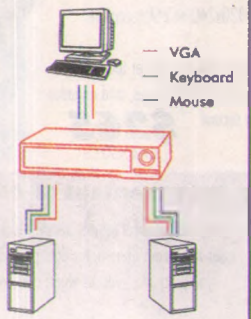


- CS-102

Control up to 2 PCs with the CS-102.



$245 DSADE030

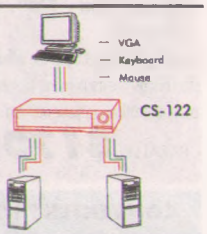


- CS-122 Switch between 2 PCs. Features:

- VGA Bandwidth of 180Hz
- VGA resolution of 1600x1200 @60Hz

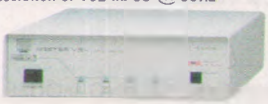


$275 DSADE037

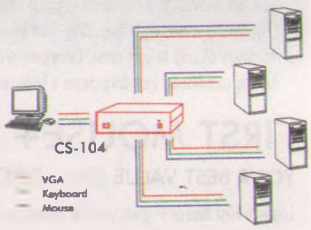


- CS-104 Control up to 4 PCs with the CS-1

- VGA Bandwidth of 100Mhz
- VGA Resolution of 1024x768 @80Hz



$395 DSADE019



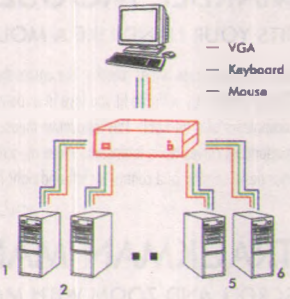
CS-114 **$415** DSADE038
(As CS-104 with support for Intellimouse)

- CS-106

Control up to 6 PCs with the CS-106



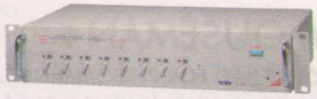
$395 DSADE020



- CS-138 Control up to 8 PCs with the CS-138. Features:

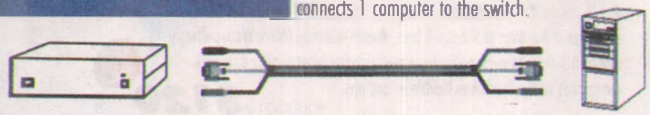
- VGA Bandwidth of 180Mhz
- VGA Resolution of 1600x1200 @60Hz

$795 DSADE041



CPU SWITCH CABLE SET

For use with the CPU Switches, each Cable Set connects 1 computer to the switch.



AT CABLE SET



$35 CBGEN098

PS/2 CABLE SET



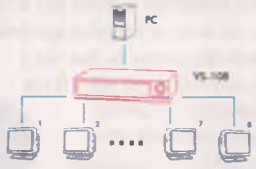
$39 CBGEN099

VIDEO SPITTERS

can duplicate PC video signals and amplify them for transmission to multiple monitors. These splitters are capable of supporting high band widths, which can easily accommodate the latest resolution technology. An excellent choice for presentations or broadcasting demos or special events.

Specifications:

- Max cable distance of 65 meters
- Supports VGA, SVGA & multisync monitors
- Slide switch for Video Signal Gain Control



VGA Bandwidth:

- VS-102 / VS-104 supports 200Mhz
- VS-108 supports 180Mhz

VGA Resolution (MAX)

- VS-102 / VS-104 supports 1600x1200 @70Hz
- VS-108 supports 1600x1200 @60Hz

VS-102

2 Port Splitter DSADE000 **$95**



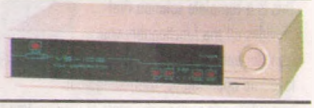
VS-104

4 Port Video Splitter DSADE001 **$135**



VS-108

8 Port Video Splitter DSADE002 **$195**



1.8m Video Splitter to Monitor Cable **$9** CBGEN035

INTERNET WEB SITE:
http://www.adelong.com.au
e.mail: info@adelong.com.au

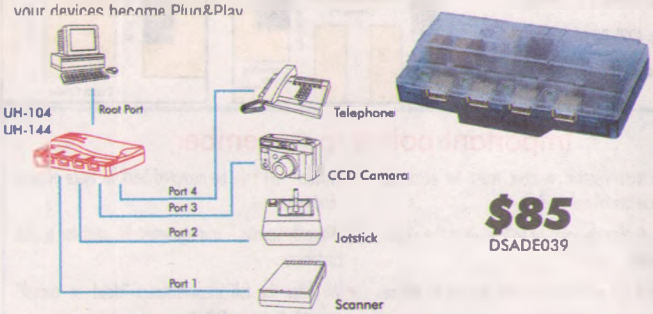
HEAD OFFICE & SERVICE
54 Rosebery Avenue
Rosebery NSW 2018
Ph: (02) 8344 3188
Fax: (02) 9697 9777

CITY OFFICE
127 York Street
Sydney NSW 2000
Ph: (02) 9267 5272
Fax: (02) 9267 5042

USB Devices

UNIVERSAL SERIAL BUS (USB) HUB

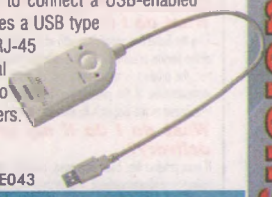
While most PCs will only support 2 USB ports, the UH-144 can support up to 4 devices with the option to daisy chain. It supports both full speed (12Mbps) and low speed devices such as keyboards and joysticks. No more complications with DMA & IRQ conflicts, with USB your devices become Plug&Play.



$85 DSADE039

USB ETHERNET ADAPTER

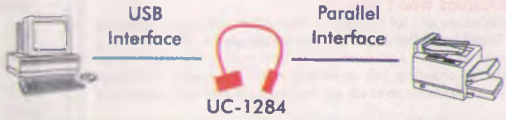
The ATEN USB Ethernet Adapter provides an easy way to connect a USB-enabled desktop or laptop PC to a 10BASE-T Ethernet LAN. It uses a USB type A receptacle for connection to the USB port and RJ-45 receptacle for connection to the network. No more internal PC cards to deal with. Just plug it in and your ready to go (PnP). Compatible with desktop and notebook computers. For use with IEE802.3 10Base-T LANs.



$95 DSADE043

USB TO IEEE-1284 BRIDGE

Connect your printer to your PCs USB Host controller with ease. Transparent and full automatic support for true bi-directional communication between your computer and your printer with no conflicts or installation hassles. Free up your parallel for other devices such as ZIP drives, Scanners and CD-ROMs by moving your printer to a USB port today!



$45 DSADE041



$15 CBGEN155
USB A CABLE



$15 CBGEN156
USB B CABLE

USB to MODEM ADAPTER

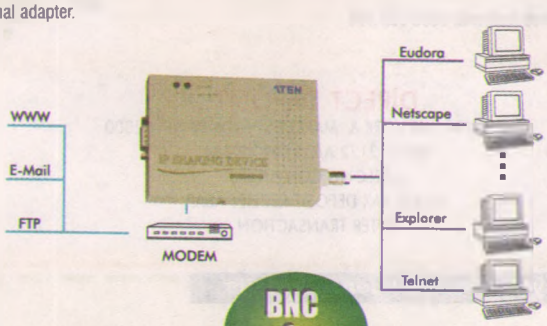
With the UC-232, ATEN's new USB to Modem Adapter, installing an external modem is a snap. Free up your serial ports for other devices while IRQ conflicts will be a thing of the past. With our UC-232, installing a modem has never been easier. Just connect one end of the adapter to your modem and the other to your computer's USB port.



$69 DSADE042

IP SHARING DEVICE

Wish everybody on your network had Internet Access but not the high costs and complexity associated with multiply accounts. If this is you, then the IS-100 IP Sharing Device is for you. By using a single Internet account with the IS-100, your whole network can have Internet Access simultaneously. The IS-100 can also act as a DHCP server and offer Firewall protection and connects to the Internet through either a 56K modem or ISDN terminal adapter.



BNC & RJ45

DSADE040 **$295**

EXTERNAL SCSI CD-ROM CASE

Use your Internal SCSI CD-ROM as a portable & removable device with the External SCSI CD-ROM Case. Easy installation for both MACs & PCs the External SCSI Case comes with a SCSI ID selector so that changing SCSI IDs is as easy as clicking a switch. The external SCSI interface is a Centronics 50 with pass through.



$135 CAADE007

EXTERNAL IDE CD-ROM CASE

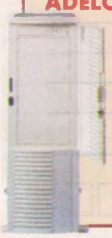


It has never been easier to add a CD-ROM to your PC. With the Portable CD-ROM, you are only one cable away from numerous CD titles and flexibility. Connects to you Windows or DOS PC via the parallel port (LPT). A printer passthrough interface is also included so that your printer can work simultaneously with your CD-ROM.

$130 CAADE008

Cases

ADELONG FILE SERVER CASE AT/ATX



Features
- 2 x 300W Redundant Power Supplies
- 7 x 5 1/4" & 2 x 3 1/2" Bays

CAADE013 **$975**

ADELONG AT 200 WATT MINITOWER CASE*

W: 180mm
D: 415mm
H: 332mm



$55
CAADE000
* Styles may vary

ADELONG DELUXE AT/ATX 230 WATT MID CASE

W: 192mm
D: 430mm
H: 540mm



CAADE004
$155

ADELONG DELUXE AT/ATX 230 WATT DESKTOP CASE

W: 442mm
D: 473mm
H: 155mm

CAADE012
$135



Power Supplies

Code	Model	Price	Code	Model	Price
PSGEN000	200W AT POWER SUPPLY	$35	PSGEN003	300W ATX POWER SUPPLY	$99
PSGEN002	200W ATX POWER SUPPLY	$55			

Sales staff are available (est) 9am-6pm Monday to Friday, 10am-4pm Saturday
Technical Support (5 Days a week 9am-6pm) Phone (02) 8344 3160

Sales Hotline 02 8344 3190

RESELLER ENQUIRIES WELCOME

*Please read our Terms and Conditions

AMERICAN EXPRESS · bankcard · MasterCard · VISA · efpos

Adelong Computers

Customer Service

Commonly asked questions

What do I do if my order is late in arriving?

Ring the Sales Representative with whom you have originally placed the order. Quote your order number or full name of the person or company who purchased the items. We first have to establish if the goods were sent out or not. If not, the product is temporarily out of stock and the up-to-date delivery time may be obtained from your sales representative. If the product has been sent out already, the problem will be with the carrier. You will then be transferred to the Dispatch Representative who will take your details, contact the carrier and then call you back.

What do I do if my product has been damaged during delivery?

If your product has been damaged, our warranty manager may issue you with a returns number and arrange the collection and replacement. Please note that the collection and replacement may not be on the same carrier visit.

What do I do if I have received an incorrect product?

Ring the sales representative with whom you have originally placed the order. Discuss the problem with the Sales Representative to check if it is our misunderstanding. If it is our misunderstanding, we will pass your call through to the Warranty manager who will issue you with a returns number and arrange collection and replacement of the product.

What do I do if the courier arrives but the consignment note mentions more boxes than are being received?

Cross out the number of items listed and change it to read the appropriate number received. Ring your Sales Representative to contact the courier and to keep you informed.

What if my product won't work?

If you have our 3 year on-site warranty, call 1 800 623 394. If the problem is diagnosed as a software problem ring (02) 8344 3160 for a Technical Support Representative. Please call with the product on hand to evaluate any suggestions Technical Support will give you. If you do not have our 3-year on-site warranty, contact Technical Support. If your product has been diagnosed as faulty you will be issued with a returns number. Your Technical Representative will then arrange the collection process with you. Please note the RA # for future questions on the progress of your case.

Terms & Conditions

All orders are subject to our full terms and conditions of sale, a copy of which is available upon request. Although we take every reasonable precaution, due to the volume and diversity of the products that we carry, we do not accept liability for any errors in pricing or descriptions. Due to the nature of this catalogue, pricing and stock availability is subject to change at any time without notice. All pricing listed includes sales tax, unless otherwise stated. Delivery is in addition to listed prices, unless otherwise stated. Please note that pictures and illustrations are for display purposes only and that the final product may vary. All products, brand names, trademarks and registered trademarks are owned by their respective companies.

ORDERING & PAYMENT: We accept payment by Bankcard, Mastercard, Visa, Amex and Eftpos. All company/personal cheques and direct deposits are subject to seven working days clearance. Goods ordered by fax or post will be charged at the current price on the day of receipt. Orders can be made by phone, fax or by visiting one of our showrooms. We now have a facility where customers can order their goods instantaneously through our web site. Although this is becoming a relatively safe way to shop, customers who use this facility do so at their own risk.

CREDIT ACCOUNTS: Accounts may be opened for Govt. Depts, Education and selected incorporated businesses, subject to status. Credit account orders are only accepted on official stationary by fax or post. We reserve the right to withdraw credit facilities.

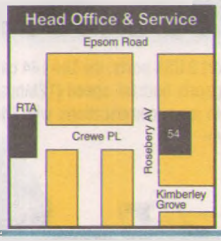
WARRANTY AND RETURNS: All computer systems come with a seven day customer satisfaction guarantee, of which shipping charges to and from the customer are not refundable. Orders are refundable, subject to final inspection of goods by Adelong Computers. We reserve the right to stipulate that our warranty on PC's and Parts overrides all other warranties that might be stated by the manufacturers.

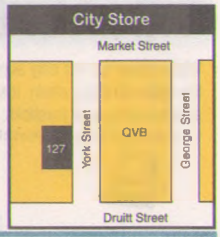
Adelong's locations for your convenience

HEAD OFFICE & SERVICE

Ph: (02) 8344 3188

Fax: (02) 9697 9777





Important points to remember

- A returns authorisation number must be obtained before the return of any product.
- Failure to display the number will result in the return being refused.
- Adelong will not accept any courier charges for return goods.
- Any product sent back to Adelong after the 7 day money back guarantee will be subjected to a 15-50% re-stocking fee based on the condition of the product.
- Products will only be accepted back in there original condition.
- Warranty repairs - carriage must be paid for by the customer.
- We offer the full manufacturers "dead on arrival" warranty to our customers.
- Deposits are non refundable.
- A returns number is valid for 14 days only.

Free Nation Wide Delivery*

Free Insurance on Freight

*APPLICABLE ONLY TO ORDERS OVER $500 AND UNDER 2KGS

SYDNEY METRO	$6.00 (20KG LIMIT)	NSW, ACT, VIC & QLD	$10.00 (5KG LIMIT)
W.A, N.T, S.A & TAS	$15.00 (5KG LIMIT)	EXCESS WEIGHT	$2.00 PER KG

OUR AVERAGE DELIVERY TIMES ARE BETWEEN 1-2 WORKING DAYS. HOWEVER DUE TO THE REMOTENESS OF CERTAIN PARTS IN W.A, N.T, TAS AND S.A, DELIVERY MAY TAKE UP TO SEVEN WORKING DAYS.



Ansett Air Freight Enquiries: 132 767

Warranty Assistance Australia: 1800 623 394

DIRECT DEPOSIT

ANZ BANK CNR YORK & MARKET ST SYDNEY NSW 2000
BSB 012172 A/C 2599 49 784
ADELONG COMPUTERS
PLEASE FAX DEPOSIT RECEIPT ASAP
AFTER TRANSACTION

If paying by cheque please include your drivers licence details

Company: _____

Address: _____ Postcode: _____

Telephone: () _____ Fax: () _____
Required

Code	Description	Qty	Price
		Total	

Payment by: Cheque ☐ Mastercard ☐ Bankcard ☐ Visa ☐ Amex ☐

Exp ☐☐/☐☐ Card No: ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐

Please fax or mail this form back to Adelong Computers

54 Rosebery Avenue, Rosebery NSW 2018

Fax: (02) 9697 9777

Signature: _____

• We are unable to deliver to PO BOX for insurance reasons

INTERNET WEB SITE:
http://www.adelong.com.au
e.mail: info@adelong.com.au

HEAD OFFICE & SERVICE
54 Rosebery Avenue
Rosebery NSW 2018
Ph: (02) 8344 3188
Fax: (02) 9697 9777

CITY OFFICE
127 York Street
Sydney NSW 2000
Ph: (02) 9267 5272
Fax: (02) 9267 5042

HARRIS TECHNOLOGY'S

Computer Stop-Press

Latest Source on the Newest Products

APRIL 1999

Web Direct

Each page has a hot Weblink address direct to "Stop-Press" latest information and pricing

TOSHIBA & CTX Projectors

New innovative Multimedia & Data Projectors Page 25

3COM Palm

New Palm V & Palm IIIx

Page 17

RICOH - New Technology

4 x CD-Record/ReWrite Drive

Page 29

1/2 Day Y2K Training

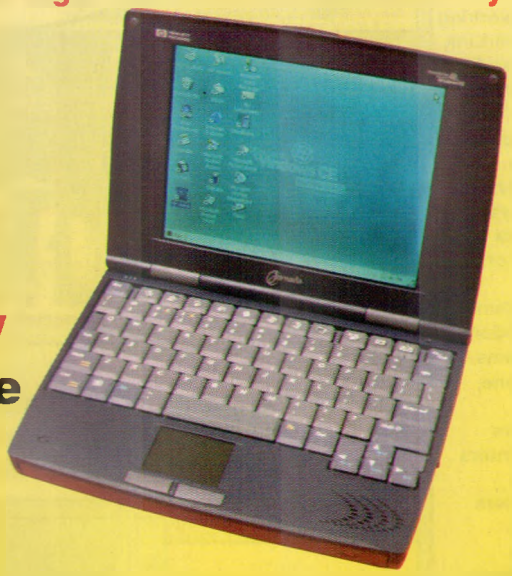
Every Wednesday, check our web site for details

Adobe! so good we use it ourselves

We enjoy using Adobe products for the production of our Catalog Page 48

HEWLETT PACKARD

Discover The Next Level in Handheld Computing... HP Jornada... Takes you Further



HP Jornada 820

8.2" VGA Screen (640x480)
190Mhz StrongRAM RISC Processor
16Mb Ram upgradable to 32Mb

$2,090
(71162)

Web Direct www.ht.com.au/cat/silicon

Sales 02 9925 9925 Website www.ht.com.au
Fax 02 9925 9897 E-mail sales@ht.com.au

SAVE MONEY! Compare our prices

HARRIS Technology

Each page has a web site address

Direct web-links here on each page

INDEX

PCs/Notebooks/ Servers
4/5 Toshiba Notebooks
6/7 IBM Notebooks
8/9 IBM Desktops, Servers
10/11 HP Desktops
12 HP Storage
13 HP Notebooks
14/15 Compaq Notebooks, Desktops
16 Targus Bags
17 3Com Palm
Back-up
18 Iomega Back-up
19 APC Back-up
29 Ricoh CD-R
30 Seagate HDD
31 MultiMedia DVD,CD
Networking/Upgrade Components
20/21 Cisco Networking
22 Comsol ServerLink
23 Netgear Networking
24 D-Link Networking
Sharp Laser copier
Monitors, Projectors, Digital Cameras
25 AVA Projectors
26 Kodak Cameras
27 Sony Monitors
28 Philips Monitors
Modems
32 Banksia Modems
33 NetComm Modems
34 Xircom Modems
Printers, All-in-one, Scanners
24 Sharp Printers
35 Tektronix Printers
36 HP DeskJets
37 HP Mono Lasers
38 HP Scanners
39 HP All-in-one
40 Epson Printers
41 Canon Printers
56 HP Colour Laser Printers
Software Applications
42 WorldBook/Crayola
43 MYOB Accounting
44 Visio Diagramming
47 Corel Software
48 Adobe Software
49 Inprise Software
50 Microsoft MOLP
51 Microsoft Press
Software Utilities
45 Symantec Utilities
46 McAfee Utilities
52/53 Seagate Software
54 Logitech Cameras/ Dysney Software
55 AGFA Scanners & Cameras

71 Staff - 76 phone lines



Buy on the web

- From your home or office
- Search on 34,000+ items
- 7 days, 24 hours ordering
- Make your own 'Quotes'
- 'Build' your own configs
- See your order status 'live'
- Try the best Australian site

www.ht.com.au

Want more information?

Phone, fax, call into our shop, or enquire on our web site.

We are very experienced at all levels: **file servers, network hubs & switches, network cards, graphics cards, software, and many more...**

Also, try our **Web Direct** Web links at the top of each page for more complete information about the products from that vendor.

WEB SITE **www.ht.com.au**

34,000+ products, pricing inc or ex tax, driver downloads, stock availability, product pictures, wide and deep range of information.

Main Reception **02 9925 9999**

Sales **02 9925 9925**

Customer service **02 9925 9900**
Delivery queries etc.

Fax **02 9925 9897**

Write out the specs of what you want us to **quote**, and we'll get back to you.

Email **info@ht.com.au**

Web Query **www.ht.com.au**

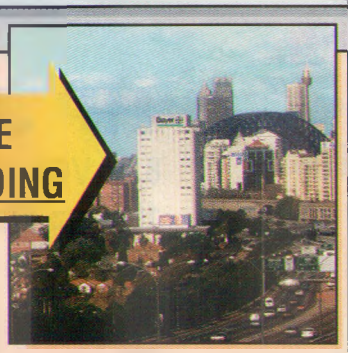
Go to our web site. In the top scrollable 'frame' we have a **Query** page. Type in your query and submit to us via the web.

Shop **Open 7 Days**

Monday - Friday	9am to 6pm
Sat / Sun	9am to 4pm
Public Holidays	Open on some, check!

Orders

You can order via **fax, phone, Email, mail, or via the web site 'basket'.** Ensure you give us your details so we can get back to you with any queries.



Open 7 Days

12 Years in Bayer Building

Right at the T-intersection of **Mount** & **Alfred Sts.**

HARRIS TECHNOLOGY

275 Alfred Street
North Sydney 2060

HARRIS

Several finance methods available, subject to approval

Delivery Australia-wide

Under 3Kg	$9
3Kg - 10Kg (e.g printer)	$15
Over 10Kg (e.g. system)	$30
Sydney city (only) over $100	Free

HARRIS PC Clubs

Web Direct www.ht.com.au

Web benefits for members of...

ASCPA accountants

If you are a registered paid-up member of the ASCPA, then you can obtain special member benefits and receive weekly email special offers. Register your email address with CPA-Online and visit the CPA Technology Solutions web site for more information at:

www.cpaonline.com.au

Financial Advisers

MercAdviser

As a registered MercAdviser financial member you are entitled to special benefits on the purchase of your computer requirements. Whether it be a new notebook computer, a modem, or just a toner cartridge, you'll find special value.

www.mercadviser.com.au

First National Real Estate

FIRST NATIONAL REAL ESTATE

Are you a registered office of First National Real Estate? Then you can obtain special pricing and benefits from us.
If you are interested and would like to know more visit:

www.firstnational.com.au/

Australian Istitute of Banking and Finance Inc

As a registered AIBF financial member you are entitled to special benefits on the purchase of your computer requirements. Whether it be a new notebook computer, a modem, or just a toner cartridge, you'll find special value. Would you like to know more?

www.aibf.com.au/

Basketballers

If you're a registered member of a Basketball Australia association then you can obtain a great range of special benefits. For more info ask your association or visit:

www.basketball.net.au

For great info & latest Boomers scores & profiles visit their web site. Get 'live' stats of all games updated every 30 seconds, video, audio, & photos.

www.basketball.net.au/trnmnt.htm

Investors

financial passages

Financial passages members are entitled to a large range of special benefits which can be accessed via the Internet. You can obtain benefits and savings on a wide range of products and participate in the various programmes offered on the financial passages web site. Visit the financial passages web site at:

www.financialpassages.com.au

Club Members - Register on-line

The above organisations, and several others, have negotiated with us for special pricing and benefits for their members. If you are a bona-fide member of one of our approved clubs then you may be entitled to special volume savings and special offers. Register on-line on our web site and we will call you back within a day or so to issue your PIN number. This will give you access to Order status, special prices, club offers, etc..

Sales 02 9925 9925
Fax 02 9925 9897
Website www.ht.com.au
E-mail sales@ht.com.au
Ground floor
275 Alfred St
North Sydney

TOSHIBA

Have a look here for "live" pricing and availability.
And why not register, you'll get even better pricing!

Web Direct www.ht.com.au/cat/toshiba

For the latest pricing and information please check out the Web Direct Link.

Protect your valuable notebook with a Toshiba bag



A4 Leather notebook bag
(12716)
$184



NotePrem mobile office koskin bag
(01761)
$184



A4 koskin notebook bag
(24795)
$78

Enhanced port replicator II Tecra 8000
(51747)
$729

Notebook Models

*Harris TechnoRent rental plan subject To Approved Purchasers. Rental figures shown are for 36 month terms. Please call us for latest figures.



All models in table feature USB	NEW Satellite 2520CDT	NEW Satellite 4030CDT	NEW Satellite 4060XCDT	NEW Satellite 4080XCDT
Processor	AMD K6-2 300MHz	Celeron 300MHz	Pentium II 333MHz	Pentium II 366MHz
RAM Std/Max	64/192 MB	64/192 MB	64/192 MB	64/192 MB
Hard Disk	4GB	4GB	4GB	6GB
Screen	12.1" TFT	13.3" TFT	14.1" TFT	14.1" TFT
Display	800 x 600	1024 x 768	1024 x 768	1024 x 768
CD-ROM	24x max.	24x max.	24x max.	24x max.
Mic & Spkr	Speakers	Speakers	Speakers	Speakers
Battery Life	3+ hours	3+ hours	3+ hours	3+ hours
Port replicator	No	Yes	Yes	Yes
Select bay	No	No	No	No
DVD capable	No	No	No	No
Weight	3 kg	3 kg	3 kg	3 kg
Warranty	1 Year	1 Year	1 Year	1 Year
DAA modem	No	No	No	No
Op. system	Win 95/98	Win 95/98	Win 95/98	Win 95/98
Rent 3 Yrs.**	$27.17/wk*	$31.12/wk*	$39.58/wk*	$47.57/wk*
Inc Tax	**$3,450**	**$3,998**	**$5,240**	**$6,298**
Part number	(30599)	(72302)	(72303)	(72304)

We have an extensive Web Site where you can view detail on all of these products and accessories. Also don't forget to ring and ask about rental rates for these notebooks. Rates on these pages are for long term leasing. Pricing may change after this page is printed so please refer to the WWW.



All models in table feature USB	NEW Portégé 3020CT	NEW Portégé 7020CT	NEW Tecra 8000 333	NEW Tecra 8000 333	NEW Tecra 8000 366	NEW Tecra 8000 366
Processor	Pentium 300MHz	Pentium II 366MHz	Pentium II 333MHz	Pentium II 333MHz	Pentium II 366MHz	Pentium II 366MHz
RAM Std/Max	32/96 MB	64/192 MB	64/256 MB	64/256 MB	64/256 MB	64/256 MB
Hard Disk	6GB	6GB	6GB	6GB	10GB	10GB
Screen	10.4" TFT	13.3" TFT	13.3" TFT	13.3" TFT	14.1" TFT	14.1" TFT
Display	800 x 600	1024 x768	1024 x 768	1024 x 768	1024 x 768	1024 x 768
CD-ROM	No	No	24x max.	24x max.	24x max.	24x max.
Mic & Spkr	Yes	Yes	Yes	Yes	Yes	Yes
Battery Life	2.5+ hours	2+ hours	3+ hours	3+ hours	3+ hours	3+ hours
Port replicator	No	No	No	No	No	No
Select bay	No	No	Yes	Yes	Yes	Yes
DVD capable	No	Yes	No	No	No	No
Weight	1.3 kg	1.9 kg	2.9 kg	2.9 kg	2.9 kg	2.9 kg
Warranty	3 Years	3 Years	3 Years	3 Years	3 Years	3 Years
DAA modem	No	Yes	Yes	Yes	Yes	Yes
Op. System	Win 95/98	Win 95/98	Win 95/98	Win NT 4.0	Win 95/98	Win NT 4.0
Rent 3 Yrs.**	$31.88/wk*	$55.86/wk*	$49.77/wk*	$51.28/wk*	$64.51/wk*	$65.98/wk*
Inc Tax	**$4,159**	**$7,395**	**$6,589**	**$6,789**	**$8,540**	**$8,735**
Part number	(72301)	(72305)	(72306)	(72307)	(72308)	(72309)

HARRIS

Pricing** and specifications herein are subject to change without notice

bankcard MasterCard VISA efpos AMERICAN EXPRESS

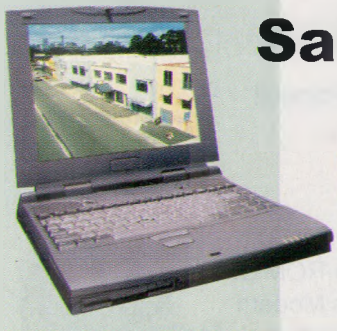
Cheques OK with 2 x Valid ID or T/T. Call for details.

TOSHIBA

Register on-line for discounts!

Web Direct www.ht.com.au/cat/toshiba

Hot new notebook models



Satellite 2520CDT

(30599)

$3,450

Long Term Rent* T.A.P.** $26.86 per week

HOT NEW PRODUCT

GREAT PRICE!

- AMD K6-2 300MHz
- 64MB RAM
- 4GB HDD
- 12.1" TFT

See page 4 for more specifications



Satellite 4030CDT

(72302)

$3,998

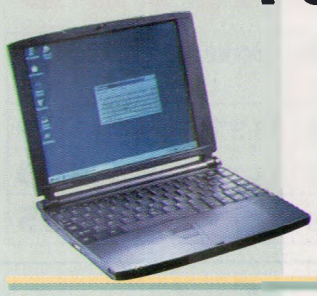
Long Term Rent* T.A.P.** $31.12 per week

HOT NEW PRODUCT

EXCELLENT VALUE!

- CELERON 300MHz
- 64MB RAM
- 4GB HDD
- 13.3" TFT

See page 4 for more specifications



Portege 3020CT

(72301)

$4,159

Long Term Rent* T.A.P.** $32.37 per week

HOT NEW PRODUCT

PLENTY OF POWER!

- PENTIUM 300MHz
- 32MB RAM
- 6GB HDD
- 10.4" TFT

See page 4 for more specifications



Tecra 8000

(72308)

$8,540

Long Term Rent* T.A.P.** $64.51 per week

PLENTY OF POWER!

- PENTIUM II 366MHz
- 64MB RAM
- 10GB HDD
- 14.1" TFT

See page 4 for more specifications

UPGRADE NOW!

Memory upgrades for Toshiba notebooks

32MB
For Tecra 8000/ Portege 7000
$199
(29356)

64MB
For Tecra 8000/ Portege 7000/ Satellite 4000
$350
(29348)

Call for more RAM options or see Web Direct Link.

HARRIS TechnoRent

* Save money by using our easy TechnoRent finance. Harris TechnoRent rental plan subject To Approved Purchasers. Rental figures shown are for 36 month terms. Please call us for latest figures. We can obtain fast approvals.

Sales 02 9925 9925
Fax 02 9925 9897
Website www.ht.com.au
E-mail sales@ht.com.au
Ground floor
275 Alfred St
North Sydney

IBM Business Partner

Fast delivery Australia wide

Web Direct www.ht.com.au/cat/ibmhw

IBM ThinkPad Range Notebooks

NEW ThinkPad 770X
Pentium II, 300MMX
64MB RAM
8.1GB HDD
14.1" TFT
1024x768
Windows 98
DVD Drive
$10,125
Rent
$71.16
per week
over 3 years.
(70829)

16MB RAM ThinkPad 600/770ED
(51960)
$179
Call for more



Black Scrollpoint Mouse
(53323)
$58



5.1GB IDE HDD ThinkPad 770
11J8947
(51954)
$1,895

IBM ThinkPad i-Series

- Incredible Technology Incredibly Priced!
- Sleek design, Active Matrix Screen
- Easy to Use with Outstanding Multimedia & Great Audio

**Rental available for approved business use, over 36 months. We can obtain fast approvals. Please call.



- Pentium® 300MHz with MMX
- 12.1" TFT Active Matrix Screen
- 4.3 Gigabyte Hard Disk Drive
- 32MB RAM
- 24x CD-ROM Drive
- 56Kbps Modem
- NiMH Battery
- Windows® 98



Rent* T.A.P. for $25.68 per week over 3 years** (73082) **$3,299**

IBM ThinkPad 380Z Series

Desktop-level performance
Fast Intel processors & large active matrix screens for razor sharp images



From
Rent* T.A.P. for $32.69 per week over 3 years** (68800) **$4,199**

Part #	Model	CPU	GB HDD	MB RAM	Win	Screen	$$
(68800)	2635-HGA	PII233MHz	4	32	98	13.3"TFT	$4,199
(68801)	2635-JBA	PII300MHz	4	32	NT	13.3"TFT	$5,549
(68802)	2635-JGA	PII300MHz	4	32	98	13.3"TFT	$4,845

IBM Thinkpad 390 Series

A price you can handle, a name you can trust

Looking for a notebook with power, performance and all the extras, at a price that won't break the bank? Then the ThinkPad 390 is the notebook computer for you!



From
Rent* T.A.P. for $25.26 per week over 3 years** (20760) **$3,245**

Part #	Model	CPU	GB HDD	MB RAM	Win	Screen	$$
(20760)	2626-20M	P233MHz	3.2	32	98	12.1"TFT	$3,245
(41710)	2626-50M	PII233MHz	3.2	32	98	12.1"TFT	$3,940

HARRIS

Pricing** and specifications herein are subject to change without notice

bankcard MasterCard VISA efpos AMERICAN EXPRESS

Several finance methods available, subject to approval

IBM Business Partner

Fast delivery Australia wide

Web Direct www.ht.com.au/cat/ibmhw

Computing Power & Portability



IBM ThinkPad 560Z Series

Super-slim, lightweight & packed with performance features

- Mobile Pentium II 300MHz
- L1 internal CPU cache 32KB, 512KB external
- Memory 64MB standard / 128MB RAM maximum
- 6.4GB EIDE hard disk drive
- 800x600 TFT - active matrix screen, 12.1 inches
- NeoMagic NM2160, 128-bit, 2MB VRAM graphics card
- Headphone jack, microphone, microphone jack, Sound
- Blaster Pro audio support, speaker, video acceleration, volume control
- Crystal semiconductor CS4237B audio, 16-bit

Rent* T.A.P. for $40.03 per week over 3 years** (65731) **$5,299**



IBM Thinkpad 600 45A

The perfect balance of mobile computing power and portability

- Powerful Intel Pentium® II 300MHz processor
- Bright 13.3" display - TFT
- High capacity 5.1GB Hard disk drive
- Fast 24x - 10x CD-ROM Drive
- 64MB SDRAM
- 16-bit SoundBlaster-compatible stereo audio
- Microsoft Windows® 98

Rent* T.A.P. for $52.84 per week over 3 years** (70193) **$6,995**



IBM ThinkPad 600 55A Series

Delivers award winning ThinkPad technology, vibrant mobile multimedia, easy connectivity and UltraslimBay flexibility, as well as simple, super-portable convenience.

- Mobile Pentium II with AGP 300MHz
- Memory 64MB standard, upgradeable to 288MB
- 6.4GB hard disk drive
- 13.3" 1024x768 TFT - active matrix screen
- Microsoft Windows® 98
- DVD Driver and Movie Play Back

Rent* T.A.P. for $55.89 per week over 3 years** (71066) **$7,399**

More GREAT IBM products

IBM ThinkPad Deluxe Koskin Carry Bag: 79F0983 (31987) **$176**

IBM ThinkPad CD-ROM Pouch: 79F0988 (31991) **$20**

Rental rate for business use, includes stamp duty and FID for NSW. Enquire for slight variations in other states. T.A.P.*

APRIL SPECIAL

Buy a laptop + a NetComm Global Card and get a 10/100 Ethernet Card FREE!*

See page 33

Sales 02 9925 9925
Fax 02 9925 9897

Website www.ht.com.au
E-mail sales@ht.com.au

Open 7 Days

IBM Business Partner

Fast delivery Australia wide

Web Direct www.ht.com.au/cat/ibmhw

IBM PC300GL Desktops

RAM
We have the latest pricing on the latest RAM modules for your IBM Desktop. Call and talk to our account managers about your options TODAY!
$Call

IBM Options
Black Sleek Mouse
$45
(49847)

Black 104 Key Keyboard
$94
(34331)

CD-ROM Pouch
$20
(31991)

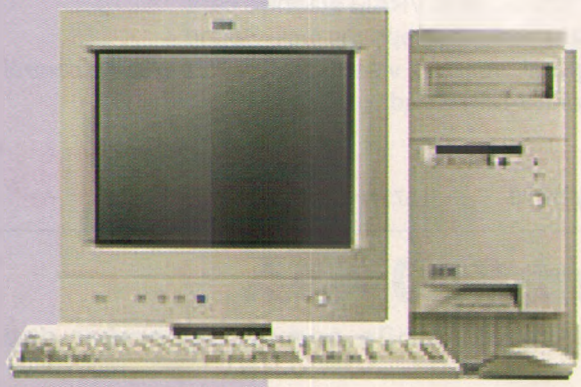
*Rental rate for business use includes stamp duty and FID for NSW. Enquire for slight variations in other states.

6287-21A IBM PC 300GL Celeron 333MHz



Call now for this and other great IBM Desktop options

- Celeron 333MHz
- Ram Standard/Max: 32MB/256MB
- Hard Disk Size: 3.2GB (Ultra ATA, with S.M.A.R.T.)
- Graphics Chipset: S3 Trio3D AGP, 2 MB
- Operating System: Windows 98
- **CD-ROM Optional**
- Audio Optional



Without monitor: (72297) **$1,836**

WHILE STOCKS LAST

IBM PC 300GL 333MHz + IBM G51 15" Monitor



(74503) **$1,975**

SPECIAL OFFER While stocks last

6275-65A IBM PC 300GL PII 400MHZ



- Intel Pentium II 400Mhz with 512Kb L2 Cache
- 32MB SDRAM
- 3.2GB Ultra ATA HDD with S.M.A.R.T.
- 3.5" 1.44MB Floppy disk drive
- Graphics Chipset: S3 Trio3D AGP, 2MB
- Standard 104 keyboard
- Operating System: Windows NT 4.0
- **CD-ROM Optional**

Without monitor: (65976) **$2,220**

With monitor: (65976 + 47189) **$2,627**

Rent* T.A.P.** **$20.45**/week over 3 yrs

HARRIS

Pricing** and specifications herein are subject to change without notice

bankcard MasterCard VISA efpos AMERICAN EXPRESS

Several finance methods available, subject to approval

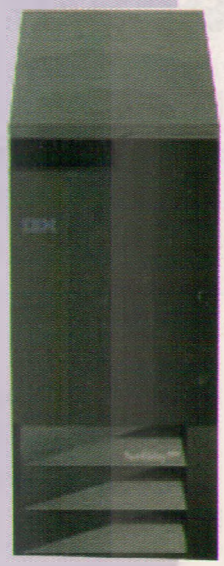
IBM Business Partner

Fast delivery Australia wide

Web Direct www.ht.com.au/cat/ibmhw

IBM Netfinity File Servers

IBM Netfinity 5000 File Server



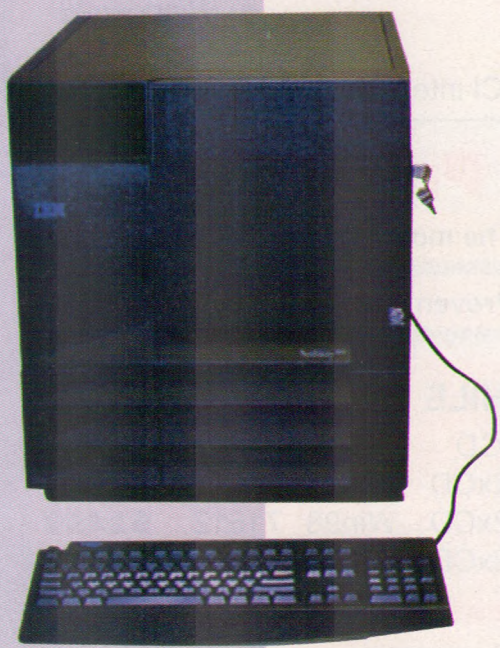
Tower Model Pictured

- Intel Pentium II 350MHz Processor with 512KB Cache
- 64MB 100MHz ECC SDRAM with max. 1GB
- 2 of 2 PCI/ISA slots free, 3 of 3 PCI slots free
- Dual Channel Wide Ultra SCSI Disk Controller (SCSI-3 on planar)
- Integrated-ethernet 10/100 network Interface
- 32x max. CD-ROM disk drive
- 16-bit PCI
- Installed operating system optional
- Enhanced 2-button mouse
- 3.5" 1.44MB diskette drive
- Basic 101-key keyboard

From... (69403) **$5,594**

Part #	Processor	IBM #	Type	$
(69403)	PII 350Mhz	865912Y	Tower	5,594
(69404)	PII 350MHz	96591SY	Rack	5,760
(69405)	PII 400MHz	865922Y	Tower	5,850
(69406)	PII 400MHz	86592SY	Rack	6,199
(69407)	PII 450MHz	865931Y	Tower	6,389
(69408)	PII 450MHz	86593RY	Rack	6,749

IBM Netfinity 5500 File Server



- 400MHz Pentium II processor with 512KB ECC L2 Cache 1 or 2 processors, upgradeable to Pentium® II Xeon
- 128MB RAM standard, maximum 1GB
- Dual Channel Wide Ultra SCSI RAID (IBM ServeRAID II on planar) and EIDE (on planar), 0MB installed.
- Maximum storage capacity: 54.6GB
- 6 x 32-bit, full size, PCI slots (4 hot swap) 1 x F.S. ISA
- CD-ROM 32x maximum
- Dial-in for control/monitoring/remote management (modem required)
- Temperature and voltage monitoring

(62174) **$9,425**

Part #	Processor	IBM #	Type	$
(62172)	PII 350MHz	866011U	Tower	9,169
(62173)	PII 350MHz	86601RU	Rack	10,125
(62174)	PII 400MHz	866041U	Tower	9,425
(62175)	PII 400Mhz	86604RU	Rack	9,772
(69409)	PII 450MHz	866051U	Tower	11,745
(69410)	PII 450MHz	86605RU	Rack	11,745

Netfinity features

The Netfinity Server Tower comes complete with keyboard, mouse and NIC. The 5500 has integrated RAID support for 0,1 or 5 . 3 year limited on-site warranty.

Netfinity options

IBM Ultrawide SCSI HDD Hot-Swap 4.51GB
$1,649
(49682)

9.1GB
$3,350
(65982)

IBM 12/24GB DAT Tape Backup
$2,499
(52388)

Sales 02 9925 9925
Fax 02 9925 9897
Website www.ht.com.au
E-mail sales@ht.com.au
Ground floor
275 Alfred St
North Sydney

Accredited Workgroup Reseller
HEWLETT PACKARD

HEWLETT PACKARD

Fast delivery - Australia wide

More Info?
Web Direct
www.ht.com.au/cat/hp

HP Desktop PC's - Brio

NEW! **NEW HP Desktops for all your business Needs!!!** NEW!

HP Expands New Brio PC Line for Growing Businesses

Now more than ever, growing businesses can enjoy the latest PC technology at HP's best prices!! The new HP Brio PCs come with additional features that assist growing businesses with everyday tasks, including the exclusive HP Brio Center for on-screen support.

HP Jornada 420

HOT NEW PRODUCT



Brilliant 256-Color screen gives your data more impact

Compact & Lightweight fits in your shirt pocket!

Organise your schedule & contacts

View E-mail & your favourite web pages

Receive critical information updates with Flex(tm) paging support

(74453)
$998



Brio Entry-level

- Intel Celeron 333MHz processor
- 4.3GB hard-disk drive
- 32MB SDRAM
- LAN card
- high-performance PCI integrated audio
- CD
- MicroTower
- Window 98
- 15" Monitor

Call for Pricing



Brio Power-level

- Intel Pentium II 400MHz processor
- 8.4GB hard-disk drive
- 64MB SDRAM
- LAN card
- high-performance PCI integrated audio
- CD
- 17" Monitor
- Window 98

Call for Pricing

- **Innovative design**
- **HP quality you can rely on**
- **The most PC for your money**
- **Proven leading edge technology**

BRIO CLEARANCE SALE - ONLY WHILE STOCKS LAST

Model	Processor	Ram	HDD	Monitor	CD	OS	Part	Price
Brio 7134	333Mhz	32Mb	4.3Gb	15" Mon	32xCD	Win98	71611	**$2145**
Brio 8531	P2-350Mhz	32Mb	4.3Gb	15" Mon	32xCD	Win98	71612	**$2439**
Brio 8532	P2-400Mhz	64Mb	8Gb	17" Mon	32xCD	Win98	71613	**$2439**

These end of life clearance specials are only available while stock last!

HARRIS

Pricing** and specifications herein are subject to change without notice

bankcard MasterCard VISA eftpos AMERICAN EXPRESS

Several finance methods available, subject to approval

Accredited Workgroup Reseller

HEWLETT PACKARD

Web Direct www.ht.com.au/cat/hp

HP Desktop PC's - Vectra

HP Unveils the next Generation of Vectra PCs

NEW!







Looking for Superior Corporate PC Manageability, Stability & Security?

HP Vectra PCs are engineered to enable high IT efficiency and low PC operating costs with unparalleled PC manageability, stability and security features.

The latest HP Vectra PCs come in two form-factors that deliver great expandability and feature a new easy-access chassis for simplified serviceability. HP estimates that this may slice maintenance time by as much as 80% over previous models.

NT/Win	Vectra Model	CPU	HDD	RAM	CD	Graphics	Price
Win NT	VEi7 Celeron	366MHz	4.3GB	64MB	No	MGA G200	Call for pricing
WinNT	D8152N	PII400MHz	4.3GB	64MB	No	MGA G200	Call for pricing
Win98	D8174N	PII450MHz	8.4GB	64MB	Yes	MGA G200	Call for pricing

The above models also include an intergrated 16-bit stereo full duplex PCI sound and the Matrox MGA G200 has 8MB SDRAM

14" monitor (55567)	15" monitor (42745)	17" monitor (65211)	21" monitor (40886)
$299	$427	$767	$2,899

VECTRA CLEARANCE MODELS - ONLY AVAILABLE WHILE STOCKS LAST

#	Vectra Model	CPU	HDD	RAM	CD	Graphics	Price
(71614)	6617 Celeron	333MHz	3.2GB	32MB	No	ATI Rage IIC	$1,875
(65662)	6572 Pentium II	350MHz	3.2GB	64MB	No	MGA G100	$2,439
(67278)	6582 Pentium II	400MHz	3.2GB	64MB	No	MGA G100	$2,735

HP E-50 Netserver

The ideal NetServer for small to medium business



Pentium® II 333MHz MMX
•
512 KB Sec. Cache
•
32MB ECC RAM
•
3.5" Floppy Drive
•
24x CD-ROM Drive
•
2MB Graphics Adapter
•
1 Parallel & 2 Serial Ports
•
6 Expansion Slots
•
Enhanced IDE Controller
•
Single Channel Ultra Wide SCSI Controller
•
10/100 Embedded Network Interface Card
•
Mouse + Keyb.

(66749)
$3,209

Sales 02 9925 9925
Fax 02 9925 9897
Website www.ht.com.au
E-mail sales@ht.com.au
Ground floor
275 Alfred St
North Sydney

HEWLETT PACKARD

Fast delivery Australia wide

For the latest info & pricing look here ⇩

Web Direct www.ht.com.au/cat/hp

HP SureStore CD Writer

Fastest, easiest way to backup your business

The HP SureStore CD Writer family offers the latest CD-ReWritable technology available

HP SureStore 8100i Internal

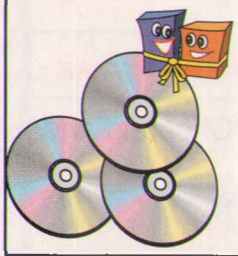


- High Quality, High Performance
- Reads CD-R at 24x
- Writes CD-R at 4x
- Writes CD-RW at 2X
- Includes HP Fast Format, Adaptec Direct CD, Easy CD Creator, Easy CD Audio, Jewel Case Designer, HP Disaster Recovery, HP Simple Trax.
- 1 year HP Warranty
- Kit also includes: IDE cable, audio cable, one CD-R and CD-RW disk.

(66428)

$768

NEW!



Save an Extra $40 with bonus FREE Media

For April only or while stocks last, purchase the HP SureStore 8100i and receive 10 pieces of CD-R media FREE



HP SureStore 7200



HP Surestore 7200i IDE Internal (57293)

$579

- Value Priced
- Premium Performance
- Reads at 6x
- Writes at 2x
- Includes Adobe software to create & edit images
- 1 year HP Warranty



HP Surestore 7200e Parallel External (71618)

$845

Accessories

HP SureStore CD-RW Media (63824) **$26**

HP CD-R Media (73182) **$4**

HP CD Labeller - complete label solution with software, 30 blank labels, mechanism (66431) **$82**

30 Labels (66432) **$18**

60 Labels (66433) **$34**

CD Covers and CD Inlays (66434) **$30**

HARRIS

Pricing** and specifications herein are subject to change without notice

bankcard MasterCard VISA eftpos AMERICAN EXPRESS

All prices include sales tax & subject to change w/o notice

HP COMMERCIAL
WORKGROUP RESELLER
Accredited Workgroup Reseller
HEWLETT PACKARD

HEWLETT® PACKARD

HP Omnibooks

More Info?
Web Direct www.ht.com.au/cat/hp

HP OmniBook 900

- 300/366PE-MHz Intel Pentium II processor
- 32MB SDRAM std; 6.4 or 4.3 GB HDD
- 12.1" SVGA TFT screen
- Optional CD-ROM drive
- Full size keyboard, Dual Pointing Devices
- 32-bit PCI bus video & graphics controller
- 2.5MG video RAM

62095
32MB RAM
$155

65203
24x CD-ROM
$577

Who says a light-weight notebook can be expensive?
Take a look at the Omnibook 900...1.8Kg! Exceptional Portability & Performance

(73315)



From....
$4,199
Rent for **$33**/Week*

#	Processor	HDD	RAM	OS	Screen	Rent/Week*	Price
(73316)	P II 300MHz	4GB	32MB	Win NT	12.1 TFT	$34.91	$4,485
(73315)	P II 300MHz	4GB	32MB	Win 95	12.1 TFT	$32.69	$4,199

So why buy a HP Omnibook Notebook PC? HP Omnibooks feature the latest mobile technology , combined with common accessories across the range including common docking & memory solutions. HP Omnibooks ship with HP Toptools & full DMI 2.0 compliance. HP Omnibook support NT, and have Comprehensive Worldwide warranties.



HP OmniBook 4100

The Slimline Lightweight corporate performance notebook offering latest technologies optimised for use both in and out of the office.

- 6GB Hard Disk
- 14.1" TFT Display
- Windows® 95
- 24 x CD-ROM
- PII 266MHz Intel CPU
- 32MB RAM expandable to 96MB
- Lithium Ion Battery (3hr)
- 3 Year Warranty

(61761)
$Call
Check for new, special pricing today!

#	Processor	HDD	RAM	OS	Screen	CD-Rom	Price
(61762)	PII266MHz	4Gb	32Mb	Win 95	14.1XGA	24xCD	$Call
(73866)	PII266MHz	4Gb	32Mb	Win NT4	14.1 XGA	24xCD	$Call
(69164)	PII300MHz	6.4GB	64MB	Win 95or98	14.1XGA	24xCD	$Call
(73866)	PII300MHz	6.4GB	64MB	Win NT4	14.1XGA	24xCD	$Call

HP Jornada 820 Palmtop



- 8.2" VGA Screen (640x480 at 256 colours)
- 190MHz StrongARM RISC processor
- 16Mb RAM (upgradable to 32Mb)
- 16Mb Burst Mode ROM
- Windows CE 2.2
- Microsoft Pocket editions of Word, Excel, Powerpoint Outlook and Internet Explorer

(71162)
$2,192

*Harris TechnoRent rental plan subject To Approved Purchasers. For business-use purposes only. Rental figures shown are for 36 month terms. Weekly figures include FID and Stamp Duty and are calculated based on NSW figures so will vary slightly for other states.

Sales 02 9925 9925
Fax 02 9925 9897
Website www.ht.com.au
E-mail sales@ht.com.au
Open 7 Days

COMPAQ

More Info?
Web Direct www.ht.com.au/cat/compaq

Armada Notebooks

Please see the Web Direct Link or call us for pricing and availability of RAM upgrades for any Compaq Notebook

* Rental rate for business use, includes stamp duty and FID for NSW. T.A.P.

APRIL SPECIAL

Buy a laptop + a NetComm Global Card and get a 10/100 Ethernet Card FREE!

See page 33

Compaq Armada 1500C Notebook

- Intel Celeron 300MHz
- 32MB SDRAM
- 12.1" CTFT 800x600 Display
- 2MB Video SDRAM

NEW PRODUCT



- Removable Floppy Disk Drive
- Removable 4GB Hard Disk Drive
- 24x CD-ROM
- Windows 95

Rent* for **$27.23** per week over 3 years, T.A.P.

(74430) **$3,498**

Compaq Armada 1700 Notebook

- Pentium II 266MHz MMX
- 32MB RAM (Max. 160MB)
- 4GB SMART HDD
- 13.3" Active TFT Display 1024x768
- 64-bit Graphics Accelerator
- 24x Max CD-ROM
- 56KFlex Data/Fax Modem
- Windows 95

See Web Direct for Windows NT options

(65047)

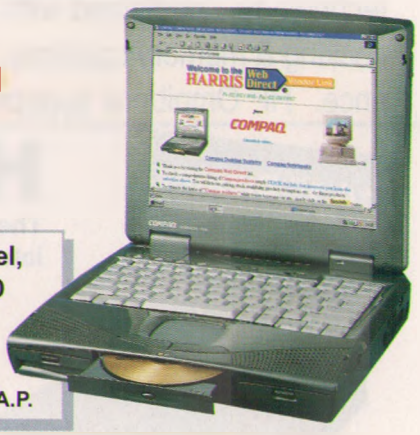
$4,859

Rent* for **$37.82** per week over 3 years, T.A.P.

Also available: 300MHz model, 14.1" TFT screen, 5GB HDD

(68653) **$5,799**

Rent* for **$43.80**/wk over 3 yrs, T.A.P.



Compaq Armada 1750 Notebook

- Mobile Pentium II 300MHz
- 64MB SDRAM
- 13.3" CTFT 1024 x 768 Display
- Removable Floppy Disk Drive
- Removable 4GB Hard Disk
- 24X Max CD-ROM



- 56KFlex Data/Fax Modem
- Windows 95

NEW PRODUCT

Rent* for **$40.78** per week over 3 years, T.A.P.

(73062) **$5,399**

HARRIS

Pricing** and specifications herein are subject to change without notice

All prices include sales tax & subject to change w/o notice

COMPAQ

More Info?
Web Direct www.ht.com.au/cat/compaq

Presario Notebooks, Desktops

Compaq Presario 1260 Notebook

- AMD K6-2 333MHz Processor
- 64MB SyncDRAM
- 4.0GB Hard Disk Drive
- 24x Max. CD-ROM
- 12.1" TFT Display
- 2MB Integrated Video Memory
- 128-bit Acccelerated Graphics
- MPEG Digital Video Playback
- Integrated Floppy Disk Drive
- 56Kbps Data/Fax Modem
- USB Connector
- Windows 98



HARRIS TechnoRent
Please call for information on Harris TechnoRent.

NEW PRODUCT

Call for pricing or see Web Direct Link www.ht.com.au/cat/compaq

Please see the Web Direct Link or call us for pricing and availability of RAM upgrades for any Compaq Notebook

* Rental rate for business use, includes stamp duty and FID for NSW. T.A.P.

Compaq Presario 2281 Desktop

- Cyrix MII MMX Enhanced Processor
- 64MB SyncDRAM, upgradeable to 256MB
- 4.0GB Hard Disk Drive
- 32x Max. CD-ROM Drive
- 4MB Video Memory
- Floppy Disk Drive
- Accelerated 64-bit PCIGraphics with Direct3D
- Integrated JBL speakers
- MPEG Digital Video Playback
- 2 USB ports
- Windows 98



Product image not available yet.

HOT NEW PRODUCT

With Compaq 15" monitor (57597): add **$478**

Without monitor:

$1,399



Proliant 1600 6/400-1H Server
Intel Pentium II CPU 400MHz **Bundled with NT Server**

(67079)
$5,599
Rent* for $42.29 per week, over 3 years T.A.P.

Compaq Deskpro EP Desktop



- Intel Celeron™ "A" 400MHz CPU
- 128KB L2 Cache
- 32MB SDRAM (256 Max)
- 4.3GB S.M.A.R.T. II Hard Disk Drive
- 4MB Matrox MGA G100 Graphics
- Windows® 95
- 15" Monitor

For more Deskpro options, take a look at the Web Direct Link or phone us.

PRICE STEAL

(73075 + 57597) **$2,339**

Rent* for **$18.23** / week over 3 years, T.A.P.

Sales 02 9925 9925
Fax 02 9925 9897

Website www.ht.com.au
E-mail sales@ht.com.au

Open 7 Days

TARGUS®
A TRADITION OF EXCELLENCE

Fast delivery Australia-wide

For more information...
Web Direct www.ht.com.au/cat/targus

New portable solutions from Targus

Backpac

Improved design



Canvas. This backpack features two compartments: one accomodates a computer notebook, size 32.5 x 37 x 6 cm, and one holds books/ files or a portable printer. Includes waist strap and reinforced padded back straps.

(26021)
$87

Air Notepac Plus Case

NEW



Nylon. For computer size: 38 x 27 x 7.6 cm. Features a zip-down workstation, a full-size expanding file section with three sections to keep your papers organized, and pockets for your cellular phone, glasses, PC cards, disks etc.

(72310) **$104**

Air Universal Notebook Case



Koskin. For computer size: 30.5 x 25.4 x 6.3 cm, printer 33 x 28 x 6.3 cm. Two padded compartments: one for your computer, the other has dividers for power supplies, A.C. adapters, external disk drives etc. or it can hold a printer. Expanding file section.

(53560) **$126**

Air Deluxe Universal Case

NEW



Koskin. For computer size: 39.3 x 28 x 6.3 cm, printer 44.4 x 33 x 5 cm. Accommodates both a notebook and a portable printer in the same padded compartment. A second compartment holds travel accessories or a change of clothes. Zip-down work-station.

(72311) **$189**

Universal Rolling Case

NEW



Large capacity rear compartment. Front compart-ment for files, drives, batteries, pens etc. Strong 91cm (3ft) 4-stage aluminium handle. Repositioned Air Cushion System. Front zipper for airline tickets. Padded shoulder straps. Reinforced Handles.

(72899) **$249**





Defcon 1

Notebook security system

NEW LOW! PRICE

With the Targus DEFCON 1 on guard, you can relax in airports, restaurants, and other public places. Compact, lightweight , easy to use.

- Easily attaches to any notebook with security lock or notebook case
- When activated the motion detector will trigger a 110 decibel alarm
- Self-retracting 1.4m steel cable

(66929)
$99

Deluxe Backpac

NEW

Fits any notebook

Features more than 15 pockets and compartments to secure all of your mobile needs.

- Heavy duty Nickel Hardware.
- Reinforced, paddled shoulder straps.
- Dual pull, self healing nylon zippers.
- Multiple pockets for work papers and accessories.



(72897) **$124**





Travel Connection Kit

Power and telephone adapters

Doing business overseas? Better pack a Targus Travel Connection kit to connect your notebook to foreign power and telephone outlets.
Two kits available: one for the Pacific Rim, one for Europe. Includes a carrying case for all connectors, a small travel pouch and country guide.

(72099/72100)
$125



Retractable Telephone cord

Fits right in your pocket!

Here is a convenient, in-expensive alternative to bulky telephone cables. This cord protects RJ-11 clips and puts an end to the tangles of loose cords. It works like a tape measure: simply pull one end and the telephone cord extends up to 2.4 metres.

(72101)
$23

HARRIS

Rent: Short or long term. Finance options available: IBM Easylease, AGC.

bankcard MasterCard VISA eftpos AMERICAN EXPRESS

Cheques OK with 2 x valid ID or T/T. Call for details.

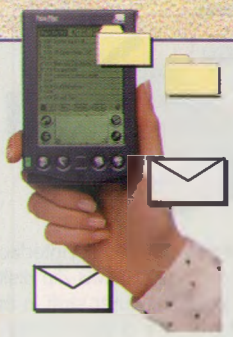
3Com More connected.



If you require more information check here...

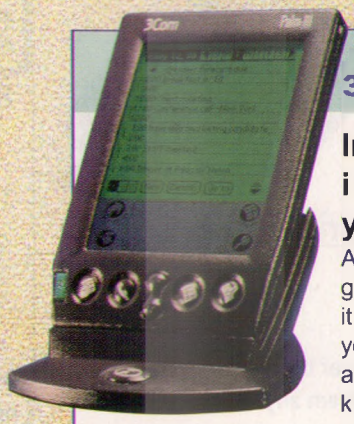
Web Direct www.ht.com.au/cat/3com

Palm™ Family of Connected Organisers



Excellent Palm™ Computing from Harris Technology

Smart, organised people like yourself rely on the Palm™ connected organiser to manage life's little details. It will help you stay on top of things everywhere you go. You can store thousands - literally thousands - of names, addresses, phone numbers, to-do's, and expenses, plus hundreds of e-mail messages. The best part? You can synchronise all your information with your computer at the touch of a button.
Infrared communication. Access your e-mail with the Palm Modem® accessory. Applications: Date Book, Address Book, Mail, To-do List, Memo Pad, Expense, Calculator,Security, Games, HotSync®.



3Com Palm III

Important information at your fingertips

At just 12 cm tall and 161 grams (batteries and all), it is small enough to fit in your shirt pocket or purse, and powerful enough to keep you organised anywhere you go. Stores approximately • 6000 addresses • 5 years of appointments (approximately 3000) • 1500 to do items • 1500 memos • 200 e-mail messages • and lots of third-party applications. Award winning!

(59857) **$625**

NEW!

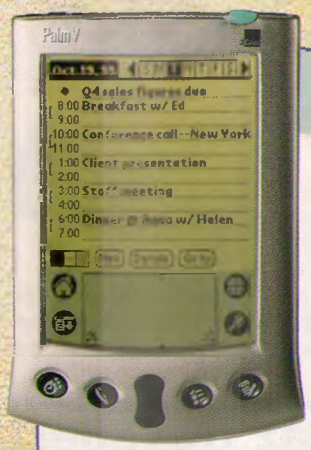
3Com Palm IIIx

More of a good thing

The Palm IIIx™ organiser gives you twice the memory of the Palm III™, and an open connector slot for room to expand. New advanced LCD screen technology improves viewing in dim light conditions or bright sunlight. Storage capacity: 4MB, stores approximately 12,000 addresses • 5 years of appointments • 3,000 to-do items • 3,000 memos • 400 e-mail messages • and lots of third-party applications.



(74373) **$749**



3Com Palm V

Slim, sleek and elegant

Sleek design and anodized aluminium case. Only half the thickness of a Palm III. Alll your names, addresses, phone numbers, appointments, to-do's and email messages right at your fingertips. Recharge in minutes a day. And, a full charge lasts for up to a month. Stores approximately 6,000 addresses • 5 years of appointments • 1,500 to-do items • 1,500 memos • 200 e-mail messages • and lots of third-party applications.

NEW!

(74294) **$898**

PalmPilot™-Accessories



Slim Leather Case
(63801)
$53



Stylus Pens 3-pack
(60675)
$23



Leather Belt Clip Case
(63271)
$49

Sales 02 9925 9925
Fax 02 9925 9897
Website www.ht.com.au
E-mail sales@ht.com.au
Ground floor
275 Alfred St
North Sydney

iomega®



Look here for labels, disk cases, carry cases, Zip Tools...

Web Direct www.ht.com.au/cat/iomega

Because It's Your Stuff®

Coming Soon
Clik Drive

- Zip 100MB disk (23772) **$24**
- Zip 100MB disks 10pack (21889) **$190**
- Zip PCMCIA SCSI accelerator card (35145) **$192**
- Zip carry case (31823) **$57**
- Zip parallel cable (46305) **$40**
- Zip SCSI cable (46304) **$40**
- Jaz 1GB disk (24218) **$179**
- Jaz 1GB disk 3-pck (32844) **$495**
- Jaz 2GB disk (61652) **$199**
- Jaz 2GB disk 3pck (57271) **$550**
- Jaz Jet - PCI SCSI controller (31591) **$195**
- Jaz PCMCIA SCSI card (44744) **$225**
- Jaz cable converter (46306) **$30**
- Jaz universal power supply (35154) **$59**
- Jaz Traveller (32860) **$90**

zip® 250MB



BIG capacity, Take-it-anywhere drive.

(74301) **$395**

* Easy to use
* It's light!
* It's portable!
* It holds more files than ever before!
* Save your files and take them anywhere

Zip is the most popular way to collect, create and share your files. Then access files and applications instantly. Keep in mind, while you can use 100MB disks in the 250MB Zip drive, the opposite is not true. 250MB Zip disks do not work in 100MB Zip drives. SCSI/Parallel. Disks not included.



And don't forget to call us for pricing on the Zip® 250MB diskettes to use with your Zip drive

zip® Starter Kit



(70623) **$295**

Get started with the Zip starter kit! It's a portable parallel interface Zip drive plus four fun and practical, coloured 100MB Zip disks that are ideal for colour coding all of your computer stuff in the office, at home, at school, or anywhere. The colours make it even easier to find what you are looking for.

zip® Internal ATAPI Retail

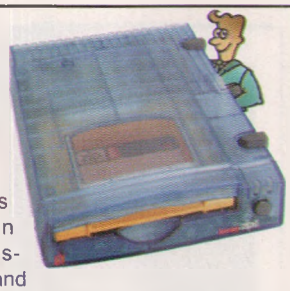
(16629) **$195**



Fast, easy backup and archiving of your important information. Expand your hard drive without limits, 100MB at a time. High performance without the need or expense of SCSI connections. Connects to internal hard drive controller using standard IDE/ATAPI interface and internal power supply. Fits inside a standard 3.5" or 5.25" drive bay.

zip® USB

(71103) **$292**



Now USB-enabled PC users running Windows® 98 can connect Iomega's sleek, translucent ice-blue **USB Zip drive**, and reap the benefits of simple connectivity and unlimited storage capacity. Once the IomegaWare software has been loaded, remove and swap the Zip drive with other USB devices without rebooting your PC.

jaz® 2GB



The Jaz 2GB drive is faster than many hard drives, has a full **2GB** of storage space in each removable disk, gives you the freedom to take your files with you, and is backward compatible with industry standard Jaz 1GB disks.

Internal SCSI (57269) **$746**

jaz® 2GB + jaz traveller



(71582)

Together for only ~~$874~~ **$716**

The Jaz 2GB drive bundled with the **Jaz Traveller adapter**. The Jaz Traveller allows you to connect your portable SCSI Jaz drive to the parallel port on any PC, making it easy for you to use your Jaz drive on a computer that does not have a SCSI or PCI SCSI adapter installed.

buz®



The easiest way to get multimedia from camcorders, DVD, CD-ROMs, VCRs and laserdiscs into your PC!

It's a video capture and editing board combined with an Ultra SCSI controller that lets you capture multimedia (full motion video, sounds, digital pictures, music) into a PC, edit it using the easiest software around, and share it using Jaz or Zip disks, VCR tapes or the Internet.

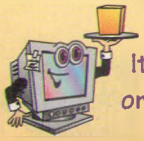
(53998) **$346**

HARRIS

Pricing** and specifications herein are subject to change without notice

Several finance methods available, subject to approval

APC®
AMERICAN POWER CONVERSION



It's easy to order on-line!

For the latest pricing and availability have a look at this Web Direct link:

Web Direct www.ht.com.au/cat/apc

Power Back Up = Power Protection

APC Back-UPS® For workstations



- Surge protected outlet for laser printers
- Lightning and surge suppression
- Full-time EMI/RFI filters for noise filtration
- Communication interface port
- QuickSwap™ battery replacement system
- Quick recharge
- User adjustable option switches allow you to save battery power
- Three battery back-up outlets to protect your work



APC Back-UPS 300va (56229) **$195**

APC Back-UPS 500va (56230) **$245**

APC Back-UPS 650va (56231) **$355**

CALL FOR SPECIAL PRICING !! (02) 8912 9438

APC Back-UPS Pro® For advanced workstations

- Powerchute Pro® software
- Easy Overload Recovery
- Audible Alarms
- Network Ready
- User replaceable, hot swappable batteries.
- Universal Hardware Compatibility.

PREVENT DATA-LOSS!



APC Back-UPS Pro 280va (43449) **$275**

APC Back-UPS Pro 420va (37947) **$449**

APC Back-UPS Pro 650va (28512) **$605**

CALL FOR SPECIAL PRICING !! (02) 8912 9438

APC Smart-UPS® For small office servers

Affordable power protection for PC Servers

- Includes FREE APC PowerChute® Plus
- Hot-swappable, user-replaceable batteries
- SmartBoost™ / SmartTrim™ for maximum on-line operation from 156-300 volts.
- Three battery back-up/surge protection outlets
- One surge outlet for printers, faxes, scanners etc.
- 10 Base-T/100 Base-TX network protection



APC Smart-UPS 420 (67199) **$499**

APC Smart-UPS 620 (67198) **$689**



APC Symmetra
4-16 kVA Power Array
$15,399
(71087)

So good we use it ourselves!

Back-UPS Pro for work-stations (without PowerChute®):

Pro 1000
$875
(41355)

Pro 1400
$1,124
(37949)

Power-Chute® *Plus*
for Windows®
$96
(42950)

for Win NT
$129
(19558)

See the APC Web based sizing guide to help you select the appropriate UPS. www.apcc.com

Sales 02 9925 9925
Fax 02 9925 9897
Website www.ht.com.au
E-mail sales@ht.com.au
Open 7 Days

Cisco Systems Reseller

Search on 34,000+ computer products at www.ht.com.au

Web Direct www.ht.com.au/cat/cisco

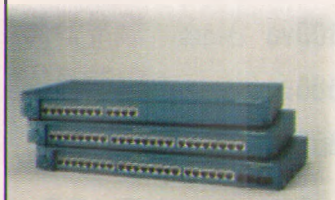
Add Cisco Systems to your

Catalyst Desktop Switches

For more information on Cisco products call (02) 8912 9432



Maximize the Power of Your Intranet





Intranet Business Application promise a more self sufficient and productive work force - major advantages in today's competitive business environment. To realize the promise of Intranets companies need an infrastructure with the superior performance and reliability required for critical business applications, such as CAD/CAM, imaging, video conferencing, Enterprise Resource Planning, Electronic Whiteboards, and Web publishing. The mission-critical nature of today's applications raises the stakes for erratic performance - from lost productivity to the very ability to conduct business. Overcome these hurdles by delivering bandwidth to your users reliably and affordably with Cisco Catalyst desktop switches.

With reliable network connections:

- employees can more effectively access intranet applications and the resources they need to do their jobs
- IT spends less time reacting to network congestion
- a company gains a more productive workforce

Cisco's Catalyst 2900 Series XL is a full line of 10/100 autosensing Fast Ethernet switches that offers outstanding performance, versatile modularity, and easy-to-use management. The Catalyst 2900 Series XL features models with different port densities, configuration options, and pricing to meet a broad range of network design requirements.

Unlike hubs, which share a fixed amount of bandwidth, desktop switches guarantee bandwidth to individual users or network devices. With a combination of 10Mbps and 100Mbps connections, Catalyst desktop switches also offer a cost-effective means to migrate users to Fast Ethernet.

HARRIS

Pricing** and specifications herein are subject to change without notice

bankcard MasterCard VISA eftpos AMERICAN EXPRESS

Several finance methods available, subject to approval

Cisco Systems Reseller

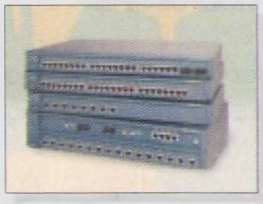
Order on-line, anytime, from your home or office.

Delivery Australia-wide.

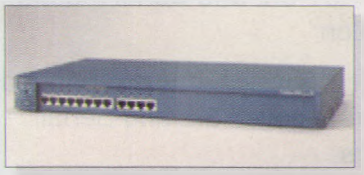
Web Direct www.ht.com.au/cat/cisco

networking team

Benefits of Catalyst Desktop Switches



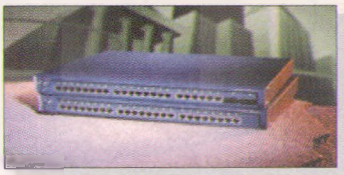
- With their own, dedicated bandwidth, users can access network resources whenever they need to, without competing with other users
- Less contention among users reduces collisions, further enhancing network performance
- LAN security increases because transmissions are directed only to selected ports, and not across the entire LAN
- Bandwidth can be increased incrementally
- A modular design enables you to add users or high-speed uplinks, including Fast Ethernet, FDDI, ATM, and Gigabit Ethernet
- Built-in support for emerging multimedia and multicast applications: your company can adopt new, powerful business applications without concern for network congestion
- A simple Web-browser interface enables management from any PC or workstation on your network or over the Internet



2912 XL



2912/2924XL



2924C XL and 2924 XL

Catalyst model	Switched 10BaseT/ 100BaseTX ports	Other technologies	Part number	Price
2912 XL A	12	10BaseT/100BaseTX, autosensing Fast Ethernet	(74277)	**$ 2,937**
2924 XL A	24	10BaseT/100BaseTX auto sensing Fast Ethernet Switch	(73792)	**$ 4,048**
2924C XL A	24	22x10BaseT/100BaseTX Auto-Sensing Fast Ethernet port/2x100BaseFX port	(73793)	**$ 5,599**
2924M XL A	24	10BaseT/100BaseTX autosensing Fast Ethernet Switch/2 Expansion slots	(73794)	**$ 4,830**

For more information on Cisco products call (02) 8912 9432



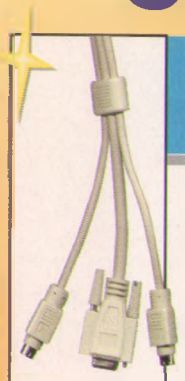
Sales 02 9925 9925
Fax 02 9925 9897
Website www.ht.com.au
E-mail sales@ht.com.au
Open 7 Days

ServerLink™

Web Direct www.ht.com.au/cat/serverlink

Multi-Server Controller

Special pricing for April only!



ServerLink to computer cable
Each end of the cable fans out into three connectors.

2m cable for **PS/2** mouse, keyboard and monitor (63972)
$18
5m cable (63976)
$77

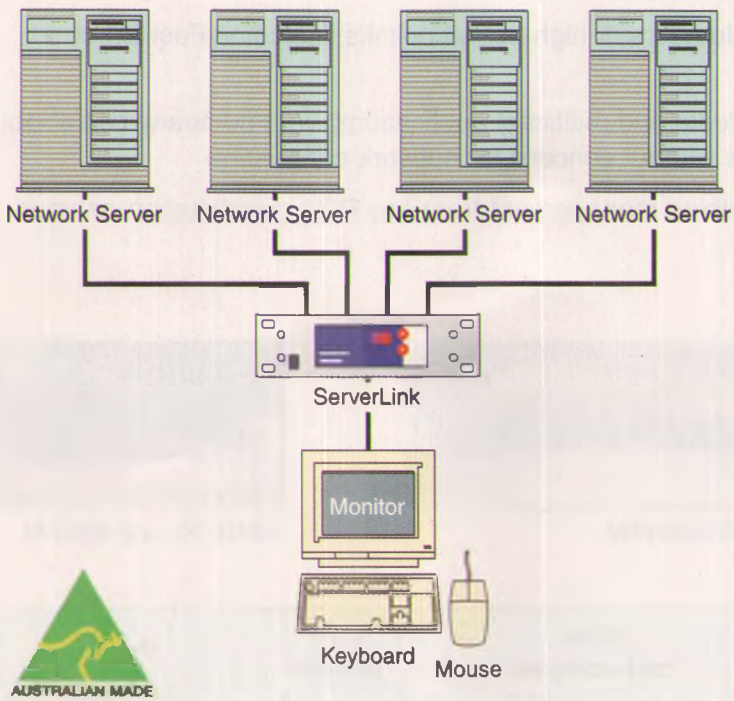
2m cable for **AT/Serial** mouse, keyboard and monitor (63974)
$17
5m cable (63977)
$75



Control up to 256 network servers with a single monitor, keyboard & mouse

With a ServerLink you can monitor and fully control up to 256 network servers with just one monitor, keyboard and mouse. Save money on expensive monitors, create more working space and cut down on your power costs.

Designed and manufactured in Australia by an award winning engineering company, ServerLink is packed with features, providing total control of your ever expanding network.



- Select servers via On-Screen-Display
- Name servers for simple selection
- Mouse & keyboard emulation for flawless booting
- Scan Mode for periodic server monitoring
- Supports PS/2 and Serial mouse emulation
- Only one physical mouse required to operate both PS/2 and Serial Servers
- Backup power feature eliminates system power failure
- EPROM upgradable for future technology
- 8 and 16 port models 19 inch rack mounted design



Pop-up Screen Menu Control

- **Available in 4, 8 and 16 port models**
- **3 Year warranty**
- **Australian made**

ServerLink™



Multi-Server Controller

SPECIAL PRICE
for the month of April only:

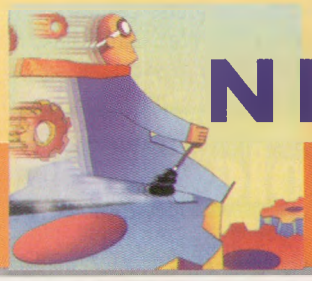
From
$395
(71652, 4-port)

ServerLink™

HARRIS

Pricing** and specifications herein are subject to change without notice

Cheques OK with 2 x valid ID or T/T. Call for details.



NETGEAR™ Web Direct www.ht.com.au/cat/netgear

Now Networking is Easy!

NETGEAR Dual Speed Hubs

4 Port 10/100 Slimline Hub



This NETGEAR Hub connects multiple PC's to share printers, files, Internet Access, and E-mail communications.

- Auto-sensing dual speed ports
- Each port works at 10 or 100Mbps
- Easy, plug-and-play installation
- Compact, sturdy, metal case
- Vista network ports with built-in LEDs

(70795) **$239**

8 Port Dual Speed (10/100) Hub Slimline



DS-108 (18755) **$499**

Window to the Future: DS-116

Ask about Dual Speed stackable Hubs (DS-508, DS-516, DS-524)

FS108 10/100 Mbps Slimline Switch



PRICE BREAKTHROUGH

- Full Duplex/Half Duplex operation
- 8x10/100Mbps switched ports
- External Power Supply

NETGEAR (70905) **$750**

Ask us about NETGEAR Integrated Fibre Switches

RM356 Analog Router

Connect multiple PCs to the Internet easily

This NETGEAR router provides shared Internet access in a box. Small offices/home users can connect multiple PCs to the Internet to access email and download information, programs, or games with a single connection, using **one ordinary phone line and one Internet Service Provider account.**



- Single-box Internet access solution: router + integrated 56K modem + integrated 4 port 10BaseT hub
- DHCP server
- Dynamic NAT+
- Dial-on-Demand routing
- Hi/fn (STAC LZS) compression
- Five year warranty

NETGEAR (70197) **$595**

10Mbps Ethernet Hubs



(53456)	EN104TP	4-port slimline 10BaseT	$ 85
(57629)	EN106TP	6-port slimline 10BaseT	$106
(53455)	EN104	4-port slimline 10BaseT, BNC	$118
(53458)	EN108TP	8-port slimline 10BaseT	$118
(53457)	EN108	8-port slimline 10BaseT BNC AUI	$165
(53459)	EN116	16-port slimline 10BaseT BNC AUI	$226
(17425)	EN516	16-port rackmount 10BT BNC AUI	$319
(17435)	EN524	24-port rackmount 10BT BNC AUI	$420

100Mbps Ethernet Hubs

(48831)	FE104	4 Port Slimline 100BaseTX Unmgd	$197
(53461)	FE108	8 Port Slimline 100BaseTX Unmgd	$349

RT328 ISDN Router



Setting new standards in ease of installation, features & price.
128K MultiLink PPP, DHCP Server, Dynamic NAT+, Dial on Demand Routing.

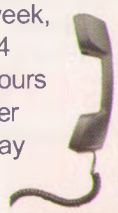
(68900) **$710**



NETGEAR by Bay Networks

NETGEAR Toll FREE 1800 Support line

7 Days per week, 24 hours per day



Adapters

EA201
10Mbps ISA + 10ft cable (NE2000 compatible)
$40 (58728)

FA310
10/100 PCI (Speed sensing,PnP)
$78 (53460)

NETGEAR FA410
PCMCIA Network Card
(60071)
$219

Sales 02 9925 9925
Fax 02 9925 9897
Website www.ht.com.au
E-mail sales@ht.com.au
Open 7 Days

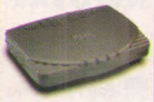
D-Link®

We offer a wide range of D-Link products. Call us, or have a look at this Web Direct link.

Web Direct www.ht.com.au/cat/dlink

Building networks for people

April Promo



DP602

Internet Server buy one in April and get External modem and Free 50 hrs internet access. Call for more details

(59820)

$475

D-Link DMF-560TX

PCMCIA 10/100Mb LAN & 56K Modem PC Card



- 10/100Mb Auto sensing LAN port
- V.90 K56 Flex fax/data/modem
- Rockwell Chip Set
- Uses only one PCMCIA type 2 slot
- Concurrent use of LAN and fax/modem
- Simple Plug and Play installation
- Supports Windows 95/98, NT and others
- Fully approved A-Tick, C-Tick, and Telepermit
- For Acer, Compaq, Digital, IBM, NEC, Toshiba notebooks

$479 (72787)

DE-805TP

Ethernet 5-port mini 10Base-T hub "Hubby"

(53599)

$99



DFE-530TX

10/100Mbps Ethernet / Fast Ethernet PCI Adapter

(62956)

$64



D-Link DFE-908X

10/100Mb 8-port stackable dual speed hub



(60558)

$723

- Integrated 10/100 switch
- 8RJ-45 NWAY, 1 RJ-45 uplink port
- Master
- Auto-sensing
- Cost-effective Ethernet to Fast Ethernet transition anytime
- Five hubs per stack

D-Link DES-810

10/100Mb 10-port combo switch



(53717)

$839

- Features 8 10Mbps RJ-45 ports and 2 100Mbps RJ-45 ports; 1 uplink
- Capable of full-duplex or half-duplex on all ports
- Dynamic buffer allocation

SHARP

Simply the best.

For the latest info & pricing look here

Web Direct www.ht.com.au/cat/sharp

New Digital Laser Copier/Printer

SHARP AL-1000 Laser Copier/ Printer

(71062)

$1,595



HOT NEW PRODUCT



AL-840

Digital Laser Copier/Printer

(72921)

$1,450

A4
8cpm
Dual PC port
600dpi printing
400dpi scanning
250-sheet feeder
Zoom 50-200%
1-50 multi copies

- High-quality 600dpi digital laser copying/printing
- Standard Printing function (GDI) with two interface ports
- Scan Once Print Many function enhances productivity
- Auto Start function eliminates waiting time
- Digital Automatic Exposure control for superior copy quality
- Digital Photo mode
- Front-loading supply cartridges make replacement easy

PV-5000A

Windows® CE Notebook



(62669)

$1,869

HC-4600

Windows® CE Notebook

(62671)

$1,555



PCA-150

Ultra Light Notebook



(45143)

$4,395

HARRIS

Rent: Short or long term. Finance options available: IBM Easylease, AGC.

bankcard MasterCard VISA eftpos AMERICAN EXPRESS

Cheques OK with 2 x valid ID or T/T. Call for details.

PROJECTORS

Looking for more information?
Web Direct www.ht.com.au/cat/ava

Multimedia/Data Projectors

TOSHIBA Which projector has a built in OHP?



- Light and Portable
- SVGA through to UXGA resolution
- 500 to 1400 ANSI Lumens
- Adjustable focus and zoom
- Multiple input and output terminals
- TLP 410, 510 and 710 available without OHP function

All Toshiba projectors (except 4 series) use the new UHP Lamp technology for lower power consumption. Built in OHP function, acts like an Overhead Projector but can also project hard copies and 3D objects.

Toshiba	TLP411ES	(72520)	$ 8,599
Toshiba	TY-G3E	(72523)	$ 11,745
Toshiba	TLP511Z	(72527)	$ 13,119
Toshiba	TLP711H	(72530)	$ 17,478



Cheaper NON OHP projectors also available, please call

Now with 2 year Warranty! Conditions apply

CTX
CTX Opto

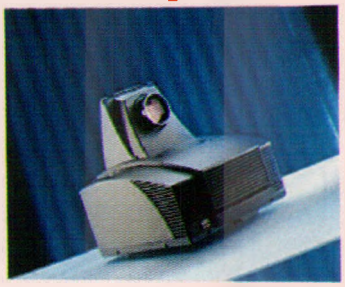
TRUE SVGA AT AN UNBELIEVABLE PRICE



- 500 ANSI Lumens
- True SVGA 800 x 600
- Lightweight at only 4.7kg
- Both Video and Computer inputs
- Bonus Free Carry Case now included

CTX EZ-Pro 585 projector (72536) **$4,995**





Now with 2 year Warranty! Conditions apply

Sales 02 9925 9925
Fax 02 9925 9897
Website www.ht.com.au
E-mail sales@ht.com.au
Ground floor
275 Alfred St
North Sydney

Kodak digital science

See Web Direct for more info on digital cameras, picture cards, carry cases, media kits, papers and CD-Recordables or speak to our sales staff.

Web Direct www.ht.com.au/cat/kodak

New Digital Cameras, CD-R/RW



DC210 Plus

2x zoom
29-58mm
Megapixel
1.8" TFT
8MB card
(67283)

$1,049



DC220 Zoom

2x zoom
29-58mm
MegaPixel
2" TFT
8MB card
USB capable
(63347)

$1,204

Kodak DC 200 Plus

(74408)



- 1 Million pixels
- Faster start and processing
- 8MB memory card
- Serial and Video cable
- Date stamp
- Picture templates
- Picture Easy 3.0

NEW! **$769**

Kodak DC 240

(74409)



- 1.3 Million pixels (1280 x 960)
- 3x Optical Zoom plus 2x Digital Zoom
- 8MB memory card
- Serial, USB and Video cable
- Picture Easy 3.0, Adobe Photo Deluxe and Adobe Pagemill

NEW! **$1,258**

Kodak DC 265

(74410)



- 1.6 Million pixels
- Faster start up and processing
- 16MB memory card
- Audio record and playback
- New "super" image compression setting for internet transfer
- Serial, USB and Video cable
- Picture Easy 3.0, Adobe Photo Deluxe and Pagemill

NEW! **$1,798**



Kodak 4802 CD-R / RW Writer

The Power to BURN

(74411)

$519

NEW!

- 8x Read, 4xCD-R Write, 2x CD-RW Write
- ATAPI Enhanced IDE Interface
- Windows 95/98/NT Compatible
- Disc-at-Once, Track-at-Once, Multisession
- Software: WinOnCD, Packet CD and Gazo Personal Image Warehouse software
- Hook up through your sound card to a HiFi system for audio recording from any source
- Large 2MB buffer
- Video CD capable



KODAK INKJET MEDIA

(34939)	Heavy Grade A4 Paper 15 sheets	$ 23
(34940)	Inkjet Transparency film A4 15 sheets	$ 22
(26843)	A4 Inkjet Photo Paper Heavy 50 sheets	$ 67
(26844)	A4 Inkjet Photo Transparency Film 50 sh.	$ 63
(34930)	Present./Communication Kit Business	$ 18
(72231)	InkJet T-Shirt Transfer Media	$ 44
(72233)	A4 InkJet Photo Paper Pic Easy 15 shts	$ 33
(72232)	A4 InkJet Photo Greeting Card 20-pck	$ 33
	A4 Letterweight Photo InkJet 100 shts	$call

KODAK CD MEDIA

(47301)	Recordable CD Media Single	$ 4
(53993)	Recordable CD Media 10-pack	$ 30
(72236)	CD-ReWritable Indiv. wrap 10 Disks	$ 21
(72240)	NEW! Kodak Digital Audio CD-R / Disc	$ 6

KODAK CAMERA ACCESSORIES

(41339)	Photo Memory 10MB (Suit 50-260)	$ 190
(62676)	Photo Memory 20MB (suit 220 & 260)	$ 319
(62677)	Photo Memory 32MB (Suit 220 & 260)	$ 388
(72889)	Photo Memory 48MB (Suit 210/220/260)	$ 462
(73187)	Camera Carry Bag (Suit 200 Series)	$ 45

KODAK VIDEO CONFERENCING

(58061) DVC323 USB Camera **$ 285**

The fast, easy and FUN way to capture and share pictures and videos! Up to 640x480 pixel colour, 30 frames per second.



HARRIS

Pricing** and specifications herein are subject to change without notice

Cheques OK with 2 x valid ID or T/T. Call for details.

SONY®

Looking for more information?
Web Direct www.ht.com.au/cat/sony

The Future Is On Our Minds

Please call or see our Web Direct for more information on these and other Sony monitors.



Trinitron® CRT Monitors	100ES	200ES	200GS	400PS	500PS
Our part number	(66055)	(58205)	(58798)	(57451)	(58544)
Size	15"	17"	17"	19"	21"
Maximum Resolution	1280x1024 @60Hz	1280x1024 @60Hz	1600x1200 @60Hz	1600x1200 @ 75Hz	1600x1200 @85Hz
Price	$599	$910	$1,299	$1,995	$3,145

Sony CD-R/RW

4x CD-R, 2x CD-RW CRX100EBK



PRICE DROP ~~$799~~ **$676**

(70899)

Internal rewritable CD-R/RW drive. 4x max. CD-R writing, 2x max. CD-RW writing, 24x max. reading. EIDE (ATAPI) interface; 1MB cache. Includes Adaptec software, one blank CD-RW disc and one CD-R disc, cables and manual.

3.5" Floppy Disk Digital Camera

Sony Digital Mavica MVC-FD91



Not just photos, but movies stored on a Floppy Disk!! Stores both high resolution still pictures (1024x768) XGA up to 40 shots, as well as full-motion video up to 60 secs onto a Floppy disk! 14x optical zoom, steady shot and stamina battery life up to 1500 shots. 2.5" colour LCD screen, auto flash, self timer, six picture index on LCD, date/time stamp and much more.

(70203) **$2,675**

Sony Digital Mavica MVC-FD81

Shares most of the same features as the MVC-FD91 with the exception of the Optical Steady Shot function and 14x zoom lens. The MVC-FD81 is instead equipped with a 3x zoom lens.

(69230) **$1,980**



Battery Pack (62951) **$115**



Soft Case MVC-FD81 (62746) **$72**

DAT Tapes

4mm x 90M 2GB **$11** (06103)

4mm x 120M 4GB **$25** (13262)

Tapes are also available as 5 packs

4mm x 90M 2GB. 5-pk **$55** (54085)

4mm x 120M 4GB. 5-pk **$107** (24968)

5¼" MO 600MB up to 1.3GB **$80** (30916)

2.3 / 2.6MB MO **$119** (30936/30937)

5x DVD-ROM Retail Kit



Introducing the worlds first 5x DVD Drive. Offering **Full CD Compatibility,** DVD-ROM & DVD Video compatibility, it will run full-motion video, play high-quality interactive games and let you read database and multimedia files stored on DVD.

(70235) **$584**

- Supplied with video cables MPEG decoder card and two DVD titles
- 12 month warranty

Sales 02 9925 9925
Fax 02 9925 9897
Website www.ht.com.au
E-mail sales@ht.com.au
Ground floor 275 Alfred St North Sydney

PHILIPS

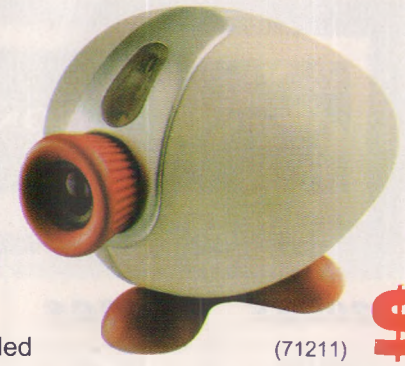
Web Direct

Take a look at more Philips Products
www.ht.com.au/cat/philips

Let's Make Things Better

Philips PCA645VC USB Camera

- USB for true plug & play performance
- Full automatic control white balance
- Flicker free picture mode under 50 and 60 Hz light environment
- Video-mail application software included
- Windows98 WDM compliant
- High frame rates: CIF up to 15 fr/sec, QCIF up to 24 fr/sec
- Integrated microphone and audio circuitry for live audio via USB
- LED shows the camera is active



(71211) **$249**

USB

Philips BrilliancTFT 15.1" LCD Monitor



This monitor is packed with features. For power users it has an option for a USB hub, with 4 downstream ports for easy connection of any device to your computer. With a super 15" viewing area, and a super tiny footprint, this monitor is perfect for any application. It has no Electro-Magnetic Emissions and complies fully with the EPA Energy Star Standards.

- **Windows '98 compliant**
- **Small 17.6 cm (7") footprint; weighs only 5.2 kg**
- **Display comparable to a 17" CRT monitor, with even better picture clarity and geometry**

151AX(22421) **$2,190**

Philips Monitors 3 Year On-Site Warranty

Philips Australia provides a three year parts and labour on-site warranty to the original purchaser. A swap-out monitor will be provided to the customer within 24 hours by Philips.

Philips Speakers

MMS130

Active 2x3-watt (RMS) speakers,80-watt PMPO. Magnetically shielded. Convenient function controls, including a rotary volume control.



Philips Analogue Stereo Speaker MMS130 (72841)

$49

DSS350 USB



Signal to noise ratios of 98dB & sampling rates up to 55KHz. Digital audio streaming under Windows® 98. Dynamic Bass Boost. Powerful 2-Way 30-Watt speakers with one 4" bass driver and one 2" tweeter.

Digital Multimedia Speaker (72845) **$225**

MMS230

Incredible surround & dynamic Bass Boost, Active 2x5-watt(RMS), 120-watt PMPO, Magnetically Shielded.



Philips Analogue Stereo Speaker MMS230 (72843)

$79

DSS370 USB

A powerful combineation. Super hi-fi audio reproduction through use of USB. Signal to noise ratio up to 98dB, sampling up to 55KH.



Digital Speaker with SubWoofer (72847)

$295

MMS280

MMS230 + Active high power subwoofer Frequency range 35-150Hz 30 Watt RMS, 60 Watt Music Power, 360 Watt PMPO.



Analogue Speaker with SubWoofer (72844)

$175

HARRIS

Pricing** and specifications herein are subject to change without notice

bankcard MasterCard VISA efpos AMERICAN EXPRESS

Cheques OK with 2 x valid ID or T/T. Call for details.

RICOH

Pricing might change after going to print so please check here

Web Direct www.ht.com.au/cat/ricoh

CDR/RW Drive Now 4x Rewrite/Record

JUST RELEASED

HOT, New Technology from Ricoh! 4x CD-RW

Windows® 95, 98 & NT 4 Compatible

Easy and simple - just like a floppy

MEDIA SOFTWARE DRIVE

$879 4x 4x 20x

RICOH Multi-Power!

Ricoh MP7040A Drive



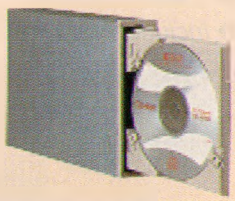
• Databuffer memory	2MB
• Data transfer rate (at I/F)	16.7MB/sec. (max., raw throughput)
• Average access time	120msec (20x)
• Recording/reading speed	Recording: 1x, 2x, 4x (CD-R/CD-RW) Reading: 1x, ~ 20x (CD-R/CD-ROM) 1x ~ 8x (CD-RW)

HT Part 52790

Ricoh's new high-performance MP7040A drive **writes CD-R and CD-RW discs at 4x speed** and reads at up to 20x. It comes bundled with DirectCD packet writing software and Easy CD Creator. So writing is as fast and easy as on other removable storage devices.

It's much faster than other CD-R/RW drives on the market thanks to new Ricoh technologies such as the extra-small pick-up module, advanced controller LSI and analog front-end processor LSI. This provides an access speed of under 120msec, 20x reading of CD-R discs 8x reading of CD-RW discs and MultiSpeed 1x, 2x and 4x writing of both discs to meet every need. You can also depend on reliable writing with fewer interruptions thanks to Running OPC (Optimum Power Control) and a built-in 2MB buffer memory that helps eliminate buffer under-run, a cause of writing errors.

The drive can be installed horizontally or vertically



Contents:
- MP7040A CD-R/RW Drive
- DirectCD and Easy CD Creator software
- 1 x CD-R disc and 1 x CD-RW disc
- Operation manual and audio cable
- Mounting screws

System Requirements: Minimum Pentium 100MHz, 32MB RAM, 75MB available hard disk space, Win 95,98,NT

Media

CD-R Discs



$4
54770

CD-RW



$28
55094

CD-RW DirectCD Formatted



$32
74418

Sales 02 9925 9925
Fax 02 9925 9897
Website www.ht.com.au
E-mail sales@ht.com.au
Ground floor
275 Alfred St
North Sydney

Seagate

Web Direct www.ht.com.au/cat/seagate

For all your Data Storage



Hard Drive Upgrade Kits



What's in the Box?

5,400 - RPM MEDALIST drives bring multimedia performance and high capacities at an exceptional value.

- *Seagate Ultra ATA Hard Drive*
- *Frame kit, mounting, brackets and drive screws*
- *Antistatic wrist strap*
- *Multimedia-Ready for full-screen, full-motion video playback and MMX*
- *ATA transfer rates up to 33.3 Mbytes per second with Ultra ATA*
- *Seek times as fast as 11 msec*
- *Designed for Pentium PC's*
- *3 Year Warranty*



Seagate Backup Exec 7.2 for Windows® NT



Spare yourself the agony and back your system up today with Seagate TRAVAN Backup

ST34321A 4.3Gigabyte	ST36531A 6.4Gigabyte	ST38641A 8.6Gigabyte	ST310240A 10Gigabyte
$336	**$392**	**$455**	**$535**
(63296)	(63297)	(63298)	(66358)

TRAVAN BackUp Kit

- *Travan TR-4 Internal Tape Back-up kits*
- *4 Gig native up to 8 Gig with software compression*
- *Includes software for Win3.x, Win 95, Win 98 & NT Workstation*
- *2 Year warranty*
- *Includes 1 x TR-4 Tapes*



***Unit is pictured installed into an external casing*

STT28000A-RFT Internal IDE (27274) **$539**

STT28000N-RFT Internal SCSI (56140) **$598**

DAT BackUp Drive

- *12/24Gb SCSI DDS-2 Internal DAT Tape Drive transfer rate up to 2.2mb/sec*
- *5.25"/3.5" DDS-3 Internal*
- *SCSI-2*
- *90m tape - 2Gb/4Gb*
- *120m tape - 4Gb/8Gb*
- *125m tape - 12Gb/24Gb*



Seagate 12/24Gb SCSI DDS-2 DAT Drive Internal (56150) **$2,589**

HARRIS

Rent: Short or long term. Finance options available: IBM Easylease, AGC.

Cheques OK with 2 x valid ID or T/T. Call for details.

Multimedia Technology

Pricing might change after going to print so please check here

Web Direct www.ht.com.au/cat/mmt

CDR & DVD Kits for everyone

PRO·KIT

Only the finest manufacturers have been selected for these premium quality kits. Designed with the ultimate hardware and software for trouble free performance, the CDR and DVD Pro-Kits are simple to install and easy to use.

PRO-KIT Internal IDE 4x8 CDR

FOR THE HOME USER...

* Internal Panasonic Drive
* WinonCDToGo V4.5 CDR software
* Scala MM200 multimedia authoring software
* 2 blank media
* Audio and data cables
* Quick Installation Guide



$565 (73155)

PRO-KIT Internal SCSI 4x8 CDR

FOR THE SERIOUS USER...

* Internal Panasonic Drive
* AdvanSys PCI SCSI controller card
* WinonCDToGo V4.5 CDR Software
* Scala MM200 multimedia software
* 2 blank media
* Audio and data cables
* Quick Installation Guide



$679 (60086)

PRO-KIT External SCSI 4x8 CDR

FOR PORTABILITY

* AdvanSys PCI SCSI controller card
* Sturdy self-contained external enclosure for recording stability
* Scala MM200 multimedia authoring software
* WinonCDToGo V4.5 CDR software
* 2 blank media
* Audio and data cables
* Quick Installation Guide



$798 (73154)

DVD ROM

The DVD PRO-KIT unleashes the most recent technology and brings movies, video and digital surround sound to life all on your PC! This kit provides you with everything needed for you to experience advanced desktop entertainment and enhanced video games.

PRO-KIT Hardware Decoder



FOR UPGRADING PC'S

* Pioneer DVD-Rom Drive (32xCD-Rom)
* Cinemaster PCI decoder card
* Websters DVD Interactive Encyclopedia
* Audio and data cables
* Quick Installation Guide

$479 (74355)

PRO-KIT Software Decoder



FOR NEW PC'S

* Hitachi 6xDVD-Rom drive (24xCD-Rom)
* Power DVD software decoder
* Riva 128ZX 2D/3D AGP graphics card
* Webster's DVD Interactive Encyclopedia
* Audio and data cables
* Quick Installation Guide

$499 (74356)

Media



Princo 74min (74357) **$3**



Princo 80 min For full audio duplication (73157) **$7**



Princo 74 min Re-Writable (74397) **$12**

Sales 02 9925 9925
Fax 02 9925 9897
Website www.ht.com.au
E-mail sales@ht.com.au
Ground floor
275 Alfred St
North Sydney

Banksia

Have a look here for the latest pricing and information ⇩

Web Direct www.ht.com.au/cat/banksia

It's your world. Be there.

NEW!

Banksia Wave SP56 Dual

Catch the V.90 Wave!

(46276)

$235



The Wave SP56 Dual modem lets you fly through the Internet faster than ever before, as much as twice as fast as previous modems.

- ITU V.90 and K56Flex Dual Mode operation
- Smart answer phone
- SVD capable
- Hands free full duplex speakerphone with echo cancellation
- Upstream data transfer at 33.6Kbps, downstream data transfer up to 55.6Kbps
- 3 year parts & labour warranty, with lifetime support

Intra 4

4x Dual Mode K56 Flex/V.90 Data Modems on ONE PCI Board

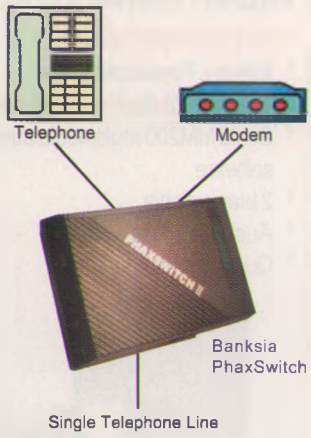
(65782)

$1,127

Banksia PhaxSwitch II

Operate your Small Business on One Phone Line

Allows small businesses and home users to take advantage of Telstra's FaxStream Duet Service. It allows the operation of two communications devices (modem, phone, fax machine, answering machine) on a single phone line, without having to maually switch the devices or incur the costs of installing and maintainting a second phone line. Each can function with a **separate phone number** over the same phone line.



(74350)

$149

Zetafax

The most advanced fax software for your PC network



Easier than using a fax machine and the faxes you send will be **sharper**. Saves time and money: no more waiting by the fax machine. Zetafax **queues faxes** for sending and will **redial automatically** if the line is busy. Monitor faxes sent and received. Detailed **logs** for each fax indicate where and when it was sent. **View** or **print** received faxes. Supports all major operating systems. Includes client and server software. **Scalable**. **E-mail gateway** option.

Single User NT System (24924) **$209**

5 User System (36049) **$769**

Banksia CommServer

Affordable remote access for everyone in your business

PRICE DROP



CommServer CS410 is a communications and remote access server with an Ethernet connection designed to provide shared inwards and outwards communications over an office Ethernet LAN.

- Allows multiple users to concurrently access the Internet, send a fax or access remote data
- Simultaneously share up to **4** external modems with regular phone lines
- Start with one modem, add more later when needed.
- Dial-in remote access

4 ports (58577) **$1,054**

HARRIS

Pricing** and specifications herein are subject to change without notice

bankcard MasterCard VISA eftpos AMERICAN EXPRESS

Cheques OK with 2 x valid ID or T/T. Call for details.

NetComm

Order on line at

Web Direct www.ht.com.au/cat/netcomm

Communicate with Netcomm

Now with SYMANTEC WinFax PRO 8.0

NetComm SmartSecurity Hardware Firewall



(70906)

$3,550

- Protects a LAN from Internet hackers and intruders
- Active Web content filtering ensures that network users are protected from undesirable Internet information
- Easy to install and manage
- Separate ports for WAN, DMZ (Demilitarised Zone) and LAN

Internet security solution

Firewall | Web content filtering

Designed for small to medium-sized business networks, NetComm's SmartSecurity is the industry's most affordable Internet security solution and offers a powerful combination of firewall and Web content filtering.
It uses the latest third generation firewall technology, 'Stateful Inspection' which examines all OSI layers to either accept or reject the requested communication.
Stateful inspection is invisible to the users on the LAN and requires no client configuration.
In addition it supports numerous Internet protocols, Including TCP and UDP which are required by applications such as DNS, DHCP and Real Audio.

NetComm Card Modem 56



Now with SYMANTEC WinFax PRO 8.0

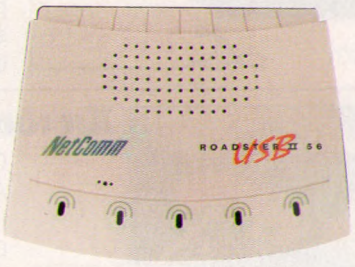
APRIL SPECIAL
Buy this card and get a NetComm CardLan 10/100 PC Card FREE! (worth $199!!)
***Available while stock last**

The ultimate in speed and portability. Send and receive faxes at speeds of up to 14,400bps, while data download speeds of up to a scorching 56,000bps are supported. K56Flex, FLASH upgradable to new ITU standard V.90 via download from website.

(52694) **$309**

NetComm Roadster II 56 *USB*

Now with SYMANTEC WinFax PRO 8.0



V.90

Designed for Windows® 98

- Connect via Universal Serial Bus Port
- Powered by **USB**, no bulky power pack needed
- Features full voice capability with voicemail and handsfree speakerphone operation (incl.headset)
- Inbuilt SVD technology: Talk and send data at the same time over the same phone line

(63379) **$259**

SPECIAL
Buy a laptop + a NetComm Global Card and get a 10/100 Ethernet Card FREE!*

NetComm 56 Global/ GSM Card



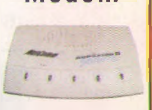
(30658)
$332

NetComm CardModem 56 Combo Ethernet



(52693)
$315

NetComm Roadster II 56K V.90 Ultra SVD Modem



(61194)
$250

Sales 02 9925 9925
Fax 02 9925 9897
Website www.ht.com.au
E-mail sales@ht.com.au
Open 7 Days

Xircom

Check here for the latest information and pricing

Web Direct www.ht.com.au/cat/xircom

Data Fax Modems & Ethernet Cards

RealPort™ Integrated PC Card Family

- No more lost, forgotten or broken cable connectors and broken pop-out jacks
- Robust and reliable communications
- Connectors directly integrated into the card
- No cables & no hassles

Lucent Technologies Bell Labs Innovations



Xircom RealPort Ethernet 10/100 + Modem 56

The integrated PC Card: nothing to break, nothing to lose

$659 Great Value!

The RealPort Ethernet 10/100+Modem 56 combines 10/100Mbps Ethernet, 56K modem, GSM, AMPS cellular and ISDN connectivity, in a single cable-free Integrated PC Card solution. **No custom cables to lose, no pop-out jacks to snap and leave you stranded.** All you need are standard Ethernet and telephone connectors. GlobalACCESS™ features make it easy to connect to information from any location, anywhere in the world.


1. Slide into PC Card slot


2. Plug in standard LAN & phone connectors


3. Ready to access information in the office or on the road


(72923) **$269**

Xircom RealPort Value 56 Modem

NEW!

High speed 56K modem functionality for notebooks. All connectors are integrated into the card providing a robust, reliable and easy-to-use solution. With no cables to lose and no moving parts to break, the RealPort Value 56 Modem will save you money with fewer support calls, less user downtime, no more need for cable replacement.


(68724) **$329**

Xircom RealPort Modem 56 GlobalACCESS

Offers mobile users high-speed 56K modem, GSM, AMPS cellular & ISDN functionality in a robust Integrated PC Card with built-in connectors. GlobalACCESS™ features make it easy to connect to information from any location, anywhere in the world. Flash ROM-upgradeable to 56K (V.90) at no charge. Also available in CardBus version.


(67216) **$275**

Xircom RealPort Ethernet 10/100

RealPort Integrated PC Card LAN solutions offer mobile users high-performance 10Mbps and 100Mbps Ethernet connectivity for the most reliable access to information while in the office.

• Easy to use • Robust integrated connectors • Uses standard RJ-45 Ethernet cord • Longer battery life • Full-duplex Ethernet at 10Mbps


CreditCard 56K modem

(54763) **$324**


CreditCard 10/100 Upgradeable

From (27310) **$250** UTP


10Mbps Pocket Ethernet

(10257) **$538** Coax


Creditcard 10/100BTX Ethernet + 56K Modem + MiniDock

From (56359) **$558**


CardBus 10/100 Ethernet

(38605) **$325**


Credit Card GSM Modem

Ericsson compatible

(55026) **$369**


MiniDock Connector System

(55838) **$59**

HARRIS

Rent: Short or long term. Finance options available: IBM Easylease, AGC.

bankcard MasterCard VISA eftpos AMERICAN EXPRESS

Cheques OK with 2 x valid ID or T/T. Call for details.

Tektronix

For the latest info & pricing see this Weblink address!

Web Direct www.ht.com.au/cat/tektronix

Award-Winning Colour Printing

Tektronix Phaser 740L



Should I get a black & white or colour printer? Yes.

With the incredibly affordableTektronix Phaser 740L colour-capable laser printer, the choice is easy. Start with a high-performance black & white printer. When you're ready, step up to colour by simply sliding in a few colour cartridges and you'll be printing in amazingly rich colour before you know it.

Colour-Capable Laser Printer (71835) **$3,775**

Tektronix Phaser 740



Never Say Never...

That is until it comes to making a choice between an affordable colour laser printer or one with extraordinary print quality. It's a compromise you'll NEVER have to make with the Tektronix Phaser 740 colour laser printer. For breathtaking images that leap off the page, at a breakthrough colour laser price, look to the Phaser. That way, you'll never have to compromise. Never.

Colour Laser Printer (71836) **$4,895**

- Print size A4
- 10BaseT for network-ready printing right out of the box
- No developers or other special components that need regular service
- Adobe Postscript 3
- Optional automatic duplexing



		740L	740
Full colour printing		add colour kit	standard
Max resolution	black	1200dpi	1200dpi
	colour	-	600dpi
Memory	standard	16MB	32MB
	max	256MB	256MB
Image processor		133MHz	133MHz
Print speed	black	16ppm	16ppm
	colour	-	5ppm
Pipeline printing		optional	optional
Duplex	manual	standard	standard
	auto	optional	optional

For Tektronix Phaser 740:

Black toner (6,000 pg) (71854) **$175**



C,M or Y toner (71855, 71856, 71857) **$359**

High capacity black toner (12,000 pg) (71858) **$265**

16MB memory (71844) **$439**

32MB memory (71845) **$875**

Glossy coated paper (100 sheets) (71879) **$218**

Extra 1 year on-site warranty (71852) **$896**

Ask about Tektronix **A3** colour lasers! From **$11,518** (23071)

Sales 02 9925 9925
Fax 02 9925 9897
Website www.ht.com.au
E-mail sales@ht.com.au
Open 7 Days

HEWLETT PACKARD
Expanding Possibilities

Fast delivery Australia wide

For the latest info & pricing look here
Web Direct www.ht.com.au/cat/hp

HP DeskJet Printers

More from HP

Office Pack
51645A black ink cartridge, 6 sheets Premium transparency film, 10 sheets Bright White paper and 10 sheets Premium InkJet coated paper
$59
(62585)

Iron-on transfers
10 sheets A4
$29
(52818)

Glossy greeting card paper
10-pack
$18
(70192)

Premium paper
200 sheets A4
$39
(19172)

Premium glossy paper
10 sheets A4
$22
(21171)

Premium glossy paper
50 sheets A4
$82
(24427)

HP DeskJet 695C

Easy to use - great quality

- HP PhotoREt Technology
- Dual cartridge
- ColorSmart II
- New improved driver - Windows 3x/95/NT 4.0
- Photo capable with optional Photo Head
- New super economy mode
- Black: 600x600dpi, 5ppm
- Colour: 600x300dpi, 1.7ppm



(66260)
$259

HP DeskJet 710C



Do you dream in colour?

- HP PhotoREt II Technology
- Black: 600x600dpi, 6ppm
- Colour: 600x300dpi, 3ppm
- 100 sheet paper tray
- Quiet operation
- Photo-quality colour for home or office
- Handles many types of paper

(68905)
$329

HP DeskJet 880C

Super-fast, stunning print quality on plain paper

- HP PhotoREt II Technology
- Black: 600x600dpi, 8ppm
- Colour: 300x300dpi, 5ppm
- Poster and n-up printing
- USB and parallel interface
- Black text more crisp and laser-like than ever
- Photo-quality colour

NEW



(72920)
$569
USB & PARALLEL

HP DeskJet 895Cxi

The high-performing, photo-quality colour printer for business productivity.

IDEAL FOR THE OFFICE !

- HP PhotoREt II Technology
- ColorSmart II
- Networkable with optional JetDirect print server
- Laser-quality text and brilliant photo-quality images
- Black: 600x600dpi, 10ppm
- Colour: 6ppm



(70705)
$790
USB & PARALLEL

See www.ht.com.au/cat/hp for a complete listing of HP inkjet papers, inks, toners, transparencies, etc.



HARRIS

Rent: Short or long term. Several options available. Ask for Christine Dalton.

bankcard VISA eftpos AMERICAN EXPRESS

All prices include sales tax & subject to change w/o notice.

HEWLETT PACKARD
Expanding Possibilities

For the latest info & pricing see this Weblink address!

Web Direct www.ht.com.au/cat/hp

HP Laser Printers

Visit the Web Direct link for HP papers, toners etc.

HP LaserJet 1100 Printer

HP's JetPath technology allows you the flexibility to expand the HP LaserJet 1100 printer into an All-in-One performer when your business needs grow. 600dpi print resolution. 8ppm print speed. 2MB RAM.

(70095) **$789**



HP LaserJet 1100A Printer - Copier - Scanner

If your current business needs require the HP LaserJet 1100 with copying and scanning capabilities, move up to the LaserJet 1100A. Printing, copying and scanning: all-in-one. Crisp, sharp laser printing. Make laser copies at the touch of a button, even without the PC turned on. Scan resolution 600dpi enhanced, 300dpi optical.

(70096) **$949**

HP LaserJet 2100 Series

All feature:
- 1200dpi
- 10ppm
- 60MHz processor
- 350-sheet paper capacity
- 15.000 page monthly duty cycle
- Excellent performance
- Superior value

NEW!



LaserJet 2100
A fast flexible laser with room to grow.
(4MB RAM, EIO, PCL 6)

(72291) **$1,439**

NEW!



LaserJet 2100M
A fast flexible laser with PS and PCL.
(EIO, PCL 6, 8MB RAM)

(72292) **$1,599**



LaserJet 2100TN
A complete network printer.
(EIO, PCL 6, 8MB RAM, additional 250-sheet feeder, HP JetDirect print server installed)

(72293) **$1,898**

Is your old printer costing you money? Upgrade and save!

It doesn't always pay to hang on to the past. For the true cost of ownership of a laser printer, you need to consider the many ongoing expenses like: maintenance, energy consumption, reduced effiency, parts, speed, risk of failure and so on. Upgrading your HP LaserJet printer can downgrade your print costs!

- **Increase productivity:** New LaserJet printers offer faster printing, shorter warm-up periods, larger memories, faster processors
- **Lower overall printing costs:** Use up to 50% less toner, up to 80% less energy
- **Less downtime:** New LaserJet printers are more reliable, and cost less to repair
- **Greater systems compatibility**
- **Sharper print quality**
- **Fully networkable, and offer EIO ports**



Here's the difference.

New LaserJet 4000	$	Old LaserJet III	$
Printer cost/month (purchase price over 3 years)	63.83	Printer cost/month (fully paid-for LaserJet printer)	0.00
Consumables/month	178.44	Consumables/month	248.00
Power cost/month	2.04	Power cost/month	19.42
Maintenance/month	6.25	Maintenance/month	12.97
Total cost/month	250.57	Total cost/month	280.39
Total ownership cost over 3 yrs	9,020.58	Total ownership cost over3 yrs	10,094.21
Total savings over 3 yrs	**$ 1,073.64**		
Total savings over 3 yrs for 20 machines	**$ 21,472.80**		

Figures based on usage analysis of 5,000 pages per month over 3 yrs.



Like to know how much you could be saving by upgrading to a new HP laser printer? Call Harris Technology today on (02) 9925 9925!



HP LaserJet 4000
17ppm
100MHz
1200 dpi
4MB RAM
From
$2,168
(54375)



HP LaserJet 5000
16ppm
100MHz
1200dpi
4MB RAM
Prints up to A3
From
$2,749
(60548)



HP LaserJet 8000
24ppm
133MHz
1200dpi
16MB RAM
Print/duplex up to A3
From
$4,579
(60551)

Sales 02 9925 9925
Fax 02 9925 9897
Website www.ht.com.au
E-mail sales@ht.com.au
Open 7 Days

HEWLETT PACKARD
Expanding Possibilities

For the latest info & pricing see this Weblink address!
Web Direct www.ht.com.au/cat/hp

Smart Scanners! Sharp Results!



HP Scanjet 6200C
Network ready. With Slide adapter.
USB INTERFACE
$739
(66184)



Scanjet 6200C with OEM ADOBE PHOTOSHOP 5.0 !!
$1,325
(71635)



Scanjet 6250C with OEM ADOBE PHOTOSHOP 5.0 !!
$1,497
(71636)



Scanjet 6250C with Omnipage Pro 9.0
$1,190
(70707)

HP Scanjet 3200C

Best Value for home

- 600dpi optical, 9600dpi enhanced
- HP PrecisionScan LT OCR software, Adobe PhotoDeluxe 2 included
- Parallel port
- 30-bit image processor

NEW



(74116)
$209

HP Scanjet 4100C

The easiest scanner for home

- Guided workflow for quick results.
- One-touch scan and copy buttons.
- Easy to set up and fast operation with USB.
- Resolution: 600dpi Hardware Super Sampling, 1200dpi enhanced.

USB INTERFACE



(67196)
$279

HP ScanJet 5200C

Highest productivity for business

- 600dpi optical, 9600dpi enhanced
- HP PrecisionScan 2.0 OCR software, Adobe PhotoDeluxe Business edition, Caere PageKeeper Standard, On-line email & Web Task software
- ScanJet copy utility
- USB and Parallel

USB & PARALLEL

NEW



(74118)
$499

HP Scanjet 6250C

Best image quality for professionals

- A powerful networkable scanner
- Resolution: 1200dpi Hardware Super Sampling, virtually unlimited enhanced resolution
- USB/SCSI capable
- Integrated automatic document feeder

USB & SCSI



(66185)
$939

Features of Intelligent Scanning Technology	3200C	4100C	5200C	6250C
Push button scanning		✓	✓	✓
Dual image scanning	✓	✓	✓	✓
Auto descreen/deskew	✓	✓	✓	✓
Integrated OCR	✓	✓	✓	✓
36-bit colour image processor		✓	✓	✓
Scan direct to application (drag & drop)		✓	✓	✓
Line art enhancement			✓	✓
Preview outline by region type			✓	✓
Auto page format retention			✓	✓
HP PrecisionScan LAN for network sharing				✓
Intelligent Assistance				✓
Unlimited enhanced resolution				✓
Advanced imaging controls				✓
35mm slide scanning				✓

HP Scanning Technology at a glance

It does the thinking for you!



APRIL
Page 38

HARRIS

Rent: Short or long term. Several options available. Ask for Christine Dalton.

bankcard VISA eftpos AMERICAN EXPRESS

All prices include sales tax & subject to change w/o notice.

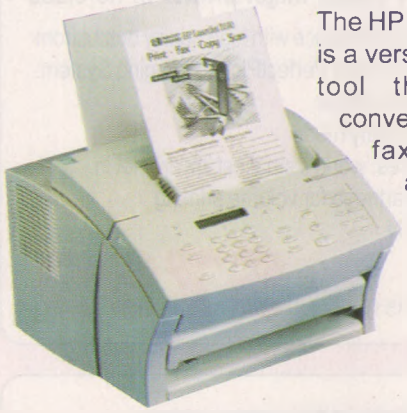
HEWLETT PACKARD
Expanding Possibilities

You don't have to leave your galaxy to buy Harris Technology products. Just order on-line!

For the latest info & pricing look here ⇩
Web Direct www.ht.com.au/cat/hp

The HP "All-in-One" Series

HP LaserJet 3100



The HP LaserJet 3100 is a versatile business tool that delivers convenient printing, faxing, copying and scanning capabilities in a single device.

• Printer • Copier • Scanner • Fax

Printer:	Print resolution:	600x600dpi
	In/output trays:	100 sheets
	Print speed:	6ppm
Fax/PC Fax:	Fax memory:	150 pages
	Speed dials:	175
Copier:	Max copies:	99
	Zoom:	50-200%
Scanner:	Scan resolution:	600 enh./300 opt.

(58566) **$1,349**

HP OfficeJet 635

Completing your work in colour is now convenient and easy. The HP OfficeJet 635 prints, scans and copies in colour, plus it's a plain paper fax. You get four essential office devices in one powerful package!

Great Value!



• Colour Printer • Colour Copier • Colour Scanner • Fax

Printer:	Print resolution:	600x600dpi black
		600x300dpi colour
	In/output trays:	100 sheets
	Print speed:	5ppm black
		2ppm colour
Fax/PC Fax:	Fax memory:	150 pages
	Speed dials:	65
Copier:	Max copies:	99
	Zoom:	50-200%
Scanner:	Scan resolution:	12 enh./300 opt.

(55544) PRICE DROP **$790**

HP OfficeJet Pro 1170C Series

The All-in-one, easy-to-use colour printer, colour copier, & colour scanner that provides professional quality and performance.



Features PhotoREt II

Print, copy, scan, all in colour!

Printer:	Print resolution:	600x600dpi black
		600x600dpi colour
	Print speed:	9ppm black
		5ppm colour
Copier:	Max copies:	50
	Zoom:	25-400%
Scanner:	Scan resolution:	12 enh./300 opt.

(63098) From **$1,365**

The 1175C model also features integrated PC faxing and has a 30-page automatic document feeder for unattended copying or scanning.

HP OfficeJet 710



Prints, faxes, scans & copies all in colour
(74303)
$969

BUY the OfficeJet 710 and receive the Party Pack FREE!!



The Party Pack includes:
C1816A photo cartridge
6 sheets of HP Premium Photo paper
10 sets of HP Greeting Cards and envelopes
1 continuous stack of 10 sheets of banner paper.
Offer valid while stocks last.

Sales 02 9925 9925
Fax 02 9925 9897
Website www.ht.com.au
E-mail sales@ht.com.au
Open 7 Days

EPSON
THE POWER TO CREATE

On-Line Parcel Tracking
Call for details

Looking for more information?
Web Direct www.ht.com.au/cat/epson

Makes bright ideas look brilliant



EPSON STYLUS COLOR 900 - The fastest A4 colour inkjet printer in its class



Combines ultra-fast true black & colour print performance with high quality output from its enhanced 1440dpi print technology & the EPSON PerfectPicture Imaging System.

* 12ppm - A4 memo black text page, economy mode
* 11.7ppm - A4 memo colour text page, economy mode
* New EPSON Ultra MicroDot™ - at 3 picolitres, world's smallest ink droplet in black and colour, high capacity black ink cartridge for volume printing
* 1440dpi print resolution, enhanced EPSON Variable-Sized Droplet Technology

(74351) **$799**

EPSON STYLUS PHOTO 1200 - The affordable A3+ colour printer



Combines EPSON's 1440 dpi PerfectPicture Imaging System with a 6-colour QuickDry™ ink palette and A3+ (329 x 483mm) paper handling. This means you can now produce full bleed A3, Photo Reproduction Quality images complete with crop/registration marks.

* A3+ Photo Reproduction Quality printing
* 6 colour QuickDry™ inks, Variable-Sized Droplet Technology
* Enhanced print speeds for photos, graphics and text
* Parallel, USB serial interfaces, Win 95/98, NT 4.0 compatible

(74352) **$975**

EPSON EPL-N1600 - Grows with your business



The EPL-N1600 offers 1200dpi high class performance printing for workgroups or demanding stand-alone users. The EPL-N1600 has a list of options designed to provide freedom to upgrade as your business grows.

* 1200dpi class printing with MicroGray 1200 and BiRITech, speed up to 16ppm
* 8Mb RAM, expandable to 40Mb. 150Mhz processor.
* Up to 3 different paper sources - 1 x 250 sheet cassette, 1 x 80 sheet multi-purpose feeder and an optional 500 sheet cassette, offering 830 sheets total paper capacity.
* Optional network connectivity

(74388) **$1995**

EPSON EPL-5700 Laser printer

Networkable, speedy laser printing with MicroGray 1200 technology for finer detail. Compact enough to fit on any desktop. Up to 8 pages per minute print speed at 600 dpi resolution. 4MB memory standard. 50-200% zoom. Print layout and watermark functions. 100MHz CPU.

(65064) **$865**



More from EPSON

Black ink cartridge for Stylus 440/640 **$38** (70948)

Black ink cartridge for Stylus 740 **$48** (70091)

Tri colour ink cartridge for Stylus 440/640/740 **$45** (70092)

See the Web Direct Link for others.

HARRIS

Rent: Short or long term. Several options available. Ask for Christine Dalton.

bankcard MasterCard VISA eftpos AMERICAN EXPRESS

All prices include sales tax & subject to change w/o notice.

Canon

For"live" pricing and more Canon products look here

Web Direct www.ht.com.au/cat/canon

You *can* on a Canon, can do!

Canon BJC-7100

Colour Bubble Jet Printer



(72294)

$524

Photo Realism

FAST !!

1200 dpi !!

- **High resolution**: Prints up to 1200dpi
- **Up to 7.6ppm mono, up to 4.8ppm colour***
- Seven colour printing system produces 25 saturation levels per pixel on any medium, including plain paper
- PhotoRealism cartridge (BC62e) included
- Printing on plain paper is 99.4% water fast, colours are more vibrant and tones are sharper

Canon BJC-255SP

Colour Bubble Jet Printer

- Resolution: 360 x 360dpi
- Up to 3.4ppm mono, up to 0.52ppm colour*
- Optimises low resolution Internet images
- Gold standard photographic printing with optional Photo-Realism inks
- Super Economy mode for low-cost printing



Photo Realism

(61684)

$145

IDEAL FOR THE HOME

Canon BJC-4310SP

Colour Bubble Jet Printer

- **Super Economy Mode** for low-cost printing
- Canon's Drop Modulation Technology™ delivers **smoother colour gradations**
- Use Canon's **PhotoRealism** inks for more colour combinations and virtually no pixelation
- **Optional scanner head**
- Super fast black & white: 4.5ppm*
- **Banner printing**: up to six A4 pages in length!
- Resolution: 720x360dpi

Photo Realism

(68730)

$198



*Approximate print speed

CanoScan FB320P

Flatbed Scanner



(68733) **$169**

- Only slightly larger than a sheet of A4 paper
- Spectacular image quality
- Comes with fun-filled photo-editing software
- Includes driver to convert your CanoScan into a **photocopier!**
- Parallel interface
- Maximum document size A4/Letter
- Selectable resolution: 25 to 2400dpi
- Optical Resolution: 300 x 300dpi

Great Value!

Sales 02 9925 9925
Fax 02 9925 9897
Website www.ht.com.au
E-mail sales@ht.com.au
Ground floor
275 Alfred St
North Sydney

Crayola

Fast Delivery

Check here for the latest information

Web Direct www.ht.com.au/cat/crayola

New Crayola Creativity

GREAT STUFF FOR CREATIVE MINDS

Please see our Web Direct for more Crayola titles, and great home titles



3D Castle Creator

NEW! (73106) **$47**

Build thousands of castles with over 60 3D pieces inspired by read Middle Age architecture. Real-time 3D lets you fly through and around your castles and meet authentic medieval characters.



3D Color a Story

(74455) **$47**

Color a Story in 3D inspires kids to interact with timeless great adventure stories. Kids can colour life like 3D story scenes and listen to dramatic retellings of the stories



Print Factory

(74456) **$47**

Create all kinds of cool paper projects with Print Factory, the all-in-one art and print studio! 3-D decorations and toys, stickers, cards, posters, banners, awards and lots more



Make a Masterpiece

NEW! (73106) **$47**

Kids can create their own Mona Lisas with Incredible art tools. Display masterpieces in a slide show, import/export photos and graphics, use loads of magical effects



Paint 'n' Play Pony

NEW! (74462) **$47**

Kids can design, decorate, dress their own pony! Decorate with accessories, groom, feed, style and wash, and choose different colours. Read stories about the ponies you create & learn fun facts



Magic 3D Coloring Book

(74459) **$47**

Magic 3D colouring book brings the fun and creativity of Crayola Crayons to your computer. Colour an image and watch it come to life as a brilliant 3D picture.

WORLD BOOK MULTIMEDIA ENCYCLOPEDIA

Fast Delivery

Check here for the latest information

Web Direct www.ht.com.au/cat/world

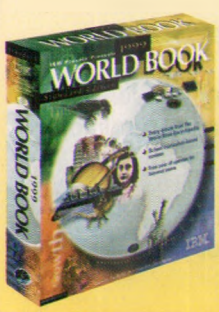
World Book Wonders

Titles Rich in Australian Content

Win95/98/NT compatible

World Book Standard 99

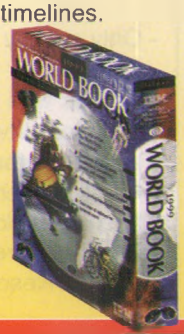
Designed for families who are interested in getting a comprehensive reference product and do not want an extensive offering of multimedia features or functions. New to this edition is World Books innovative 360-degree virtual reality views of exclusive photographs and footage of San Diego Zoo. Win95/98/NT compatible



$86 (71624)

World Book Deluxe 99

This title is best suited for families who not only want World Books curriculum-oriented content, but also are looking for a comprehensive collection of multimedia features and learning tools. View the world with a full-length video set and a virtual tour of the San Diego Zoo. Plus Homework Wizards, a collection of tools designed to help students create reports, charts and timelines.

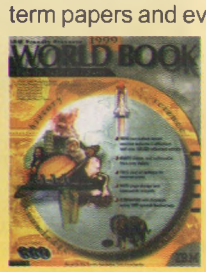


$122 (71627)

Win95/98/NT compatible

World Book Family Reference Suite

Provides "power users" with an all-in-one reference product that features cutting-edge technology, World Book's Homework Wizards, learning and organisational tools and an array of ancillary research aids. The Suite also incorporates IBM's award winning ViaVoice Gold continuous speech-recognition technology, enabling users to easily navigate around the encyclopedia, direct searches, dictate notes, write term papers and even have an article read aloud to them using simple voice commands



(71628)

$173

HARRIS

Pricing** and specifications herein are subject to change without notice

bankcard MasterCard VISA eftpos AMERICAN EXPRESS

Cheques OK with 2 x valid ID or T/T. Call for details.

MYOB

Web Direct www.ht.com.au/cat/myob

MYOB Accounting Software

20,000 reasons to buy MYOB

Simply purchase any MYOB Product this month and go in the draw to

WIN $20,000

Just fill in the coupon and send with registration card to the address advised on the coupon.



MYOB Accounting V8.0

Accelerate your business with MYOB Accounting V8.0.

Over 140,000 Australian businesses have chosen MYOB for its power and ease of use. With MYOB you don't need to know a debit from a credit. At the press of a button you can send any of over 100 reports straight from MYOB into MS Excel. Now you can quickly and easily apply all the flexibility of Excel to your accounting data. OfficeLink also links you to MS Word for fast, easy customer mailings, Select the customers, click and mail-merge, choose a template and voila! MYOB is the perfect partner for growing businesses and has class-leading reporting, inventory and purchasing managment as well as unmatched flexibility. Features include:

- General Ledger
- Cheque Book
- Sales and Receivables
- Purchases and Payables

Ideal for businesses that sell services and/or goods.

great value for just...

$325

(58600)



MYOB Test Drive
(33466)
$5



Why not try MYOB Asset-Manager
(54330)
$245



MYOB Accounting with payroll

All the power and flexibility of MYOB Accounting plus a fully integrated payroll. Process your payroll and the rest of your acounting system is instantly updated. Your payroll is an integral part of your accounting system. Calculates PAYE deductions, superannuation, holiday and sick leave. Prints group certificates, pay cheques, and generates file for your bank to autopay staff via bank transfer.

(58594)

$478



Multi User

MYOB Premier Accounting

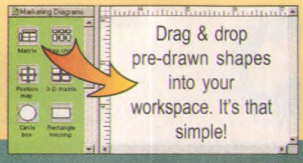
Handles all aspects of accounting including cheque accounts, credit cards, and petty cash. Invoicing is fast and accurate in that you can quickly recall customers, products and services. Use pending invoices to build up an invoice over a period of time. Record discounts offered and deposits taken quickly and easily. Customise all your invoices, orders statements. Change fonts, add text, add lines and boxes.

(46944)

$874

Sales 02 9925 9925
Fax 02 9925 9897
Website www.ht.com.au
E-mail sales@ht.com.au
Ground floor
275 Alfred St
North Sydney

Visio



Web Direct www.ht.com.au/cat/visio

Visualize your business

Visio Standard Upgrade: **$155** (50080)

1 User licence pck: **$224** (49410)

10 User licence pck: **$1,938** (49413)

Visio Professional Upgrade: **$290** (51851)

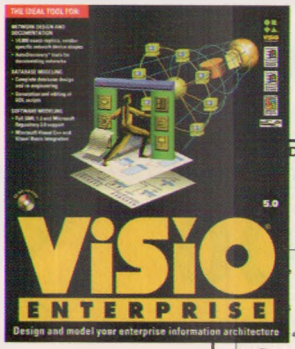
1 User licence pck: **$439** (51858)

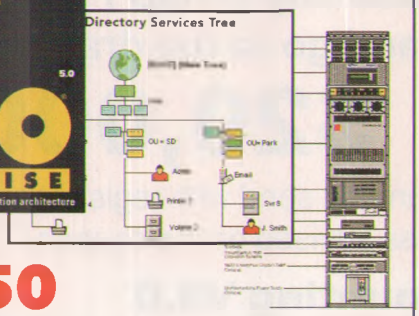
Visio Technical Upgrade: **$290** (49420)

1 User licence pck: **$439** (49422)

Visio Enterprise 10 User: **$13,158** (72085)

Visio IntelliCAD 98 10 User: **$3,998** (58629)





Visio Enterprise

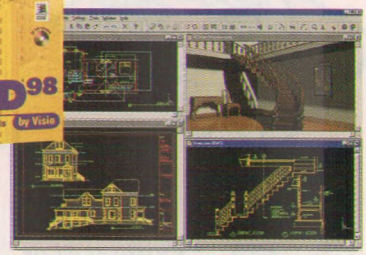
(70541)

$1,550

Design & model your enterprise information architecture

The ideal tool for designing networks and modeling databases and software applications across an enterprise information infrastructure. Use SNMP-based network AutoDiscovery™ technology and 14.000 exact-replica network equipment shapes to automatically diagram LANs and WANs, diagram wiring closets, and design directory stuctures. Re-engineer databases from leading vendors like IBM, Informix, Microsoft and Oracle. Synchronize models with data-bases, create customizable reports, and generate and edit DDL scripts. Design UML 1.2 software models and share them through Microsoft Repostitory 2.0.





Visio IntelliCAD 98

(58627)

$525

The smart, new choice for CAD professionals

Offers unparalleled Autodesk AutoCAD compatibility, smooth Microsoft Windows integration, and a host of productivity features.

- Open existing AutoCAD files (V2.5-R14.01) without conversion
- High degree of compatibility with the AutoCAD command set, as well as AutoLISP and ADS
- Open multiple drawings at once
- Review and exchange drawing content with drag-and-drop ease
- ActiveX integration: insert whole IntelliCAD drawings (or parts) into a Microsoft Office file or a Visio Technical schematic
- Visual toolbar and menu customizing



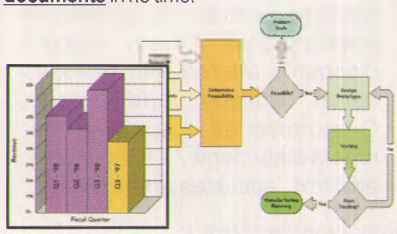
Visio Standard

(49407)

$269

Create smart business diagrams quickly

Helps you diagram and track your workflow, communicate your department's reporting structure, and enhance your presentations with ease. Plus, it shares a common interface with your Microsoft tools for smooth integration with your desktop. With its intuitive, drag-and-drop approach to drawing, you'll be producing diagrams and inserting them in your **Microsoft Office documents** in no time.





Visio Professional

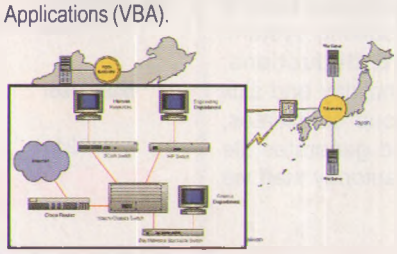
Includes Visio Standard

(51848)

$515

Diagram your information systems & business processes

Work with 980 network & telecom shapes, including more than 600 manufacturer-specific shapes. Design software projects using UML and other leading software design methodologies. Reverse-engineer ODBC-compliant databases or generate Microsoft Access databases from your diagrams or flowcharts. Create custom solutions with built-in Microsoft Visual Basic for Applications (VBA).





Visio Technical

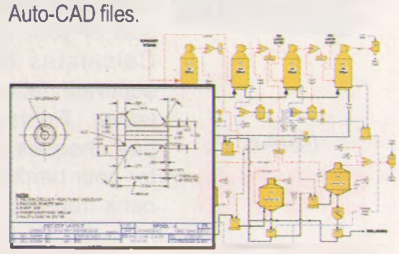
Includes Visio Standard

(49417)

$519

Create and share 2D technical drawings more efficiently

Spans the needs of 2D technical drawing professionals. Create drawings by dragging and dropping intelligent SmartShapes® symbols that behave like the bolts, stairs and other real-world objects they represent. Need to modify your design? Just right-click a shape and choose options that instantly update that shape. It also provides read and write support of Auto-desk Auto-CAD files.



HARRIS

Pricing** and specifications herein are subject to change without notice

Cheques OK with 2 x valid ID or T/T. Call for details.

SYMANTEC.

For "live" pricing and availability have a look at this WebLink! ⇩

Web Direct www.ht.com.au/cat/symantec

$10 / $20 Cash Back Offer

Buy:



Norton 2000
Prepare your PC and data for the Year 2000

(70217) **$65**

and get back: **$10**

Buy:



Norton Anti-Virus 5.0 Gold
#1 Anti-virus software

(67197) **$94**

and get back: **$10**

Buy:



WinFax Pro 9.0
The #1 choice for hassle-free faxing

(67201) **$134**

and get back: **$20**

Buy:



Norton SystemWorks*
5 utilities to fix & prevent PC problems.

(67223) **$165**

and get back: **$20**

*Norton SystemWorks now comes with the FREE BONUSPACK worth $500. It includes Norton 2000, Norton Mobile Essentials, WinFax Basic Edition and Symantec Visual Page.



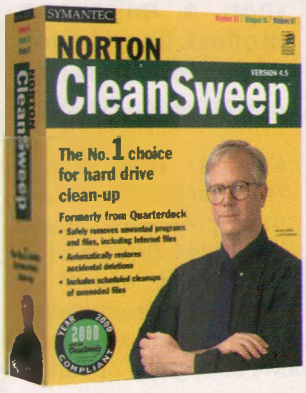
Plus...

You will also be automatically entered into the **Grand Prize Draw** to

Win a trip for 2 to New York !!

to welcome the new millennium. New Years Eve 2000 at Times Square! There are also 5 runner up prizes of dinner at The Hard Rock Cafe to the value of $500.

Simply send in the coupon attached to these Symantec products to receive your cash back.



Norton CleanSweep 4.5 for Windows 98/95/NT

Clean up your hard drive with the award-winning leader: Norton CleanSweep™ from Symantec. It improves your PC's performance by completely and safely removing unneeded items while protecting vital programs, files, and Windows_ settings. It even gets rid of extraneous cookies, ActiveX controls, plug-ins, downloaded programs, and other Internet files. A graphical interface and intuitive wizards make Norton CleanSweep as easy to use as it is thorough. In short, Norton CleanSweep is the quickest, easiest, safest way to recover hard drive space.

Now from Symantec

(74072) **$64**

★ ★ ★ Attention Corporate Customers! ★ ★ ★

The Symantec Value Licence Program (VLP) is the most complete and efficient method for companies and organisations who purchase more than 10 licences at any one time. The VLP is simple to use, saves you time and money on all Symantec's leading products, and most importantly will keep you reassuringly free of any copyright violations. Call Harris Technology on (02) 9925 9925 for information and pricing on Norton Ghost (speeds and simplifies the disk cloning process), Norton 2000 and other Symantec products today!

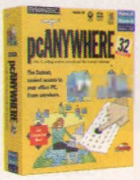
SYMANTEC. VALUE LICENCE PROGRAM

Norton Ghost



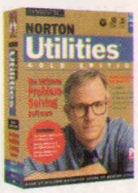
The fast PC cloning solution. Call for licencing info and pricing.

pcANYWHERE™ 8.0



(52653) **$195**

Norton Utilities Gold



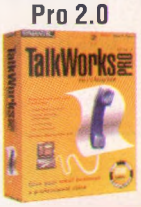
(71278) **$129**

ACT! 4.0



(58206) **$178**

Norton TalkWorks Pro 2.0



(67203) **$218**

Sales 02 9925 9925
Fax 02 9925 9897
Website www.ht.com.au
E-mail sales@ht.com.au
Ground floor
275 Alfred St
North Sydney

network ASSOCIATES

Fast Delivery

Check here for the latest information

Web Direct www.ht.com.au/cat/nai

Total protection for your PC!

MCAFEE

PGP Personal



(60523)

$76

VirusScan Security Suite



(53505)

$87

For NAI enterprise products and licences call Harris Technology or check Web Direct

McAfee Office

All the utilities, virus protection, operation, maintenance tools you ever need!

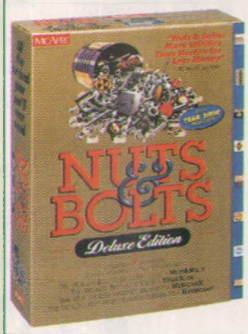


VirusScan 4 - The worlds best virus detection.
Nuts and Bolts 98 2 - Ultimate Windows repair/ optimisation.
First Aid 98 - Fixes Windows problems automatically.
Hurricane 3 - Speed-enhancing tools to boost program launch times.
Uninstaller 5 - Clean up your hard drive.
Oil Change - Scans computer for installed software/ hardware, lists new updates/drivers available on the Internet.
Guard Dog Deluxe 1 - Stops bad ActiveX / Java Applets.
2000 Toolbox 1 - Complete Year 2000 check and fix.

(70213)

$165

Nuts & Bolts 98 Deluxe



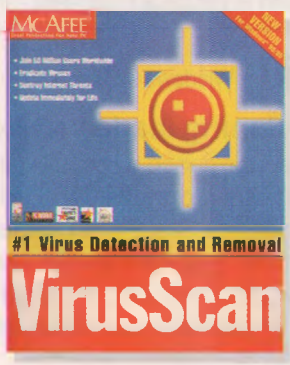
Optimises, monitors, analyses system and software - to maximise performance

Features the following packages:
Nuts and Bolts - Utilities package
VirusScan - Antivirus package
WebScanX - for Internet security
PGP - for encryption
Hurricane - performance enhancer
Year 2000 fix - checks and corrects PC for year 2000 compatibility
Discover professional - system information
Disk Minder - Finds and fixes serious hard drive errors
Disk Tune - Defragments hard drives
Bomb Shelter - Provides programe protection using on-chip capabilities
Registry Wizard - Cleans

(65253)

$109

McAfeeVirusScan® 4.0



#1 in Virus Detection and Removal. Stop viruses before they stop you!

Classic Version (70216):

$68

Deluxe Version (70215):

$87

Keeps your system clean, mean and virus-free. Using only the latest technology, VirusScan detects 100% of viruses including floppy disks, Internet downloads, e-mail attachments, Intranets, shared files, CD-ROM and online services (even inside the most popular compressed file types).

- Scan for viruses
- Schedule automatic system scans
- Receive virus detection updates
- Access additional protection tools

McAfee 2000 Toolbox®



2000 Toolbox is more than a millenium product. It's what you need for superior performance TODAY.

Checks Time Clock Hardware and BIOS & fixes problems. Scans data files (incl. Excel, Access and others) for potential date problems. Scans for and fixes 2 year date fields in data files. Checks and optimizes Windows settings for operation beyond 2000.

McAfee 2000 Toolbox gives you overall PC protection, right now: Virus protection, backs up critical system regions and helps get your system up and running in case of a disaster, monitors your system, alerts you to potential problems etc.

(65252)

$59

HARRIS

Pricing** and specifications herein are subject to change without notice

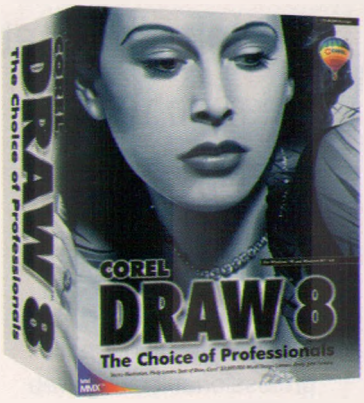
bankcard MasterCard VISA efpos AMERICAN EXPRESS

Cheques OK with 2 x valid ID or T/T. Call for details.

COREL®

Web Direct www.ht.com.au/cat/corel

Award Winning Graphics



CorelDRAW™ 8 Upgrade

Accomplished computer artists in tune with the illustration world depend on CorelDRAW™ time and time again.

CorelDRAW™ 8 upgrade includes over 100 new features that use advanced technology to boost productivity levels. That gives you over 100 reasons to buy it! Intuitive web tools for greater impact on the Internet. Interactive special effects for striking visual images. Get the creative freedom your professional standards demand. CorelDRAW™ 8 Upgrade consists of:

- CorelDRAW™ 8 - Illustration and Page Layout
- Corel PHOTO-PAINT™ 8 - Photo Editing and Bitmap Creation
- CorelDREAM 3D 8 - 3D modelling and rendering program

CorelDRAW™ 8 Upgrade (55009) **$425**

CorelDRAW™ 8 Full Product (54850) **$774**

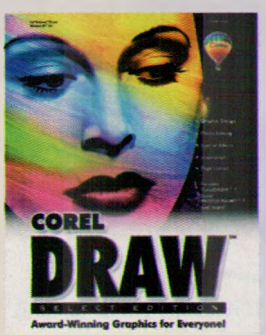
Academic Versions Available

We have great academic pricing available on Corel products. Why not give us a call and ask?

CorelDraw 8 Select Edition

Unleash your imagination with CorelDraw Select Edition. Ideal for both simple and complex projects, this exceptional graphics suite gives you the tools you need for breathtaking results. Take advantage of CorelDraw 7 and Corel PhotoPaint 7 for graphic design, photo editing, special effects, illustration and page layout. corelTutor and context sensitive Hints give you help when you need it. Plus, interactive tools and utilities provide onscreen feedback, making the design process much more intuitive.

(67251) **$85**



More from Corel

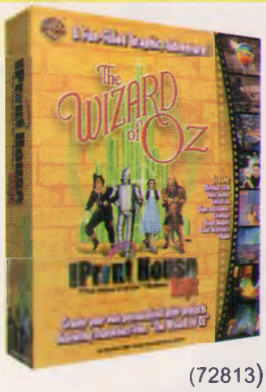


Photo-Paint 8 Upgrade (54863) **$189**



Print House Magic Deluxe (68305) **$81**

Follow the Yellow Brick Road to a Fun-Filled Graphics Adventure as easy as 1 - 2 - 3... Corel Printhouse Magic Wizard of OZ



(72813)

Corel has made it easy and fun to create invitations, party themes, Colour Me projects and much more with this special edition of Corel Print House Magic featuring Dorothy and her friends. Brighten projects with a rainbow of clipart images. Or add photos and special effects for a personal touch. Beloved characters will inspire your children to imagine, dream and explore their ideas. Includes many favourite things such as:

- Photos
- Phrases and quotes
- Clipart images
- Borders and backgrounds
- Frames
- Samples

IDEAL for the HOME

$75





Printhouse Magic (53506) **$52**

Printhouse Magic Deluxe (68305) **$82**

Sales 02 9925 9925
Fax 02 9925 9897
Website www.ht.com.au
E-mail sales@ht.com.au
Open 7 Days

Adobe

Adobe: so good we use it ourselves

Web Direct www.ht.com.au/cat/adobe

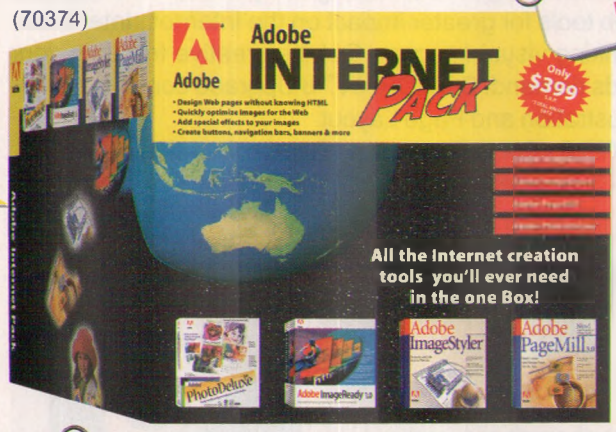
Leading Image Software

Adobe INTERNET PACK

Value: $820
Special price:
$358

4 Adobe Internet creation tools in the one box!

(70374)



ImageReady®	**1.0**	Streamlined image processing for the Web professional
ImageStyler®	**1.0**	The easy way to create professional-looking Web graphics
PageMill®	**3.0**	The easiest way to create and manage pages for the Web
PhotoDeluxe®	**2.0**	Easily modify and personalize your own photos

Internet Pack Educational
$340
(72263)

More from Adobe®

Illustrator 8.0
$699
(67039)

Dimensions® 3.0
$254
(41192)

Streamline® 4.0
$239
(41188)

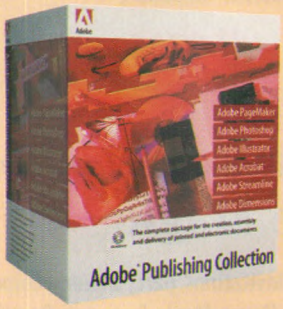
Image-Ready® 1.0
$270
(62574)

Adobe Publishing Collection

(60923)
$1,699

Includes the following great Adobe products:

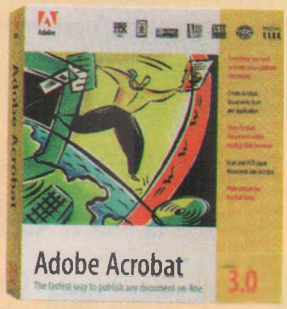
PageMaker®	**6.5**
Photoshop®	**5.0**
Illustrator®	**8.0**
Acrobat®	**3.0**
Streamline®	**4.0**
Dimensions®	**3.0**



Adobe Acrobat® 3.0.1

(46858)
$339

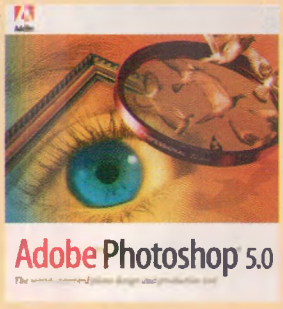
The fastest way to publish any document on-line. Create and share documents while maintaining the documents' original look and feel.



Adobe Photoshop® 5.0

(60164)
$1,185

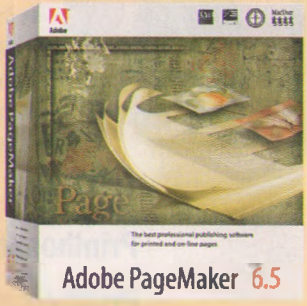
Create, paint, correct, and retouch with the "camera for your mind". Create compelling graphics for any medium. Now with spot-colour channels, editable text layers, history palette and much more.



Adobe PageMaker® 6.5

(32835)
$1,069

The world's leading professional page-layout software for printed and on-line pages.
It provides artistic freedom combined with professional-level pre-press tools.



HARRIS

Pricing** and specifications herein are subject to change without notice

bankcard VISA eftpos AMERICAN EXPRESS

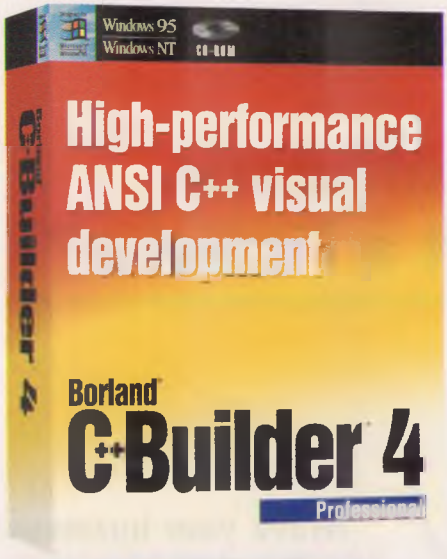
Several finance methods available, subject to approval

INPRISE™
Integrating the Enterprise

Pricing might change after going to print so please check Web Direct Link

Web Direct www.ht.com.au/cat/inprise

Solutions for software developers



NEW !

Borland C++Builder 4

Professional: (74081) **$949**

C++Builder 4 Professional is the fastest, most powerful ANSI C++ development environment for building high-performance Windows client applications. Simplify the development of Windows client applications, reduce development time and rely on the stability and maturity of ANSI standard C++. Deliver solid solutions far faster than any other C++ tool with C++Builders next generation, true-visual and fully customizable AppBrowser IDE.

Professional CrossGrade: (74082) **$285**

Enterprise: (74084) **$2,879**

C++Builder 4 Enterprise is the fastest, most powerful ANSI C++ development environment for building high-performance COM and CORBA distributed solutions. Simplify the development of complex distributed solutions, reduce investment risk with a proven language, middleware flexibility and rely on the stability and maturity of ANSI standard C++. With C++Builder you deliver solid solutions faster than any other C++ tool.

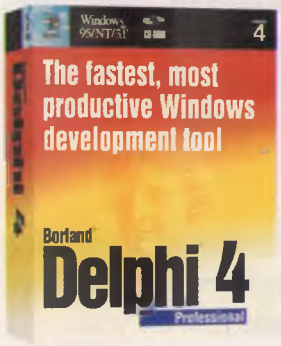
Delphi 4 Professional Upgrade: **$442** (30468)

Client/ Server Upgrade from C++ Professional: **$3,478** (66198)

..from C++ CLS: **$2,635** (66199)

JBuilder 2 Professional Upgrade **$398** (62990)

Client/ Server Upgrade from C/S **$2,785** (72282)



Borland Delphi 4

Any data. Any time. Any where.

Standard: (66195) **$172**

Delphi 4 Standard is the easiest to learn, easiest to use, high-performance Windows development tool. Includes drag-and-drop visual programming, dockable toolbars and a visual component library of over 85 reusable components.

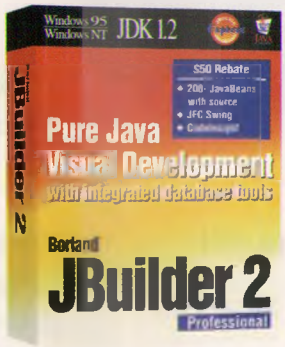
Professional: (66196) **$949**

Delphi 4 is the fastest, most productive tool to build any Windows application. Includes 10 new debugging tools, a customizable IDE with Project Manager and complete support for Windows 98 and 95 development.

Professional Cross Grade: (66197) **$459**

Client/Server Suite: (64016) **$3,778**

Through its high productivity solutions for distributed computing, Delphi 4 Client/Server Suite gives you access to any data, any time, anywhere.



Borland JBuilder 2

Makes it point-and-click easy to create industry standard JavaBeans

• **NEW!** Take advantage of JDK Switching for compiling against the latest JavaSoft JDK. • **NEW!** Deliver applications in record time with the productivity of 200+ reusable JBCL, JFC/Swing, and dbSwing JavaBean components with source code. • **NEW!** Build 100% Pure Java distributed applications with VisiBroker for Java. • **NEW!** Instantly create reusable JavaBeans with JavaBeans Express. • **NEW!** Speed up coding and reduce syntax errors with CodeInsight. • **NEW!** Save time with Pure Java DataExpress components for drag-and-drop database applications. • **NEW!** Deployment Server. • **NEW!** Drag-and-drop database applications.

Standard: (46936) **$155**

Professional Cross Grade: (65319) **$448**

Client/Server Suite: (68388) **$3,587**

Sales 02 9925 9925
Fax 02 9925 9897

Website www.ht.com.au
E-mail sales@ht.com.au

Open 7 Days

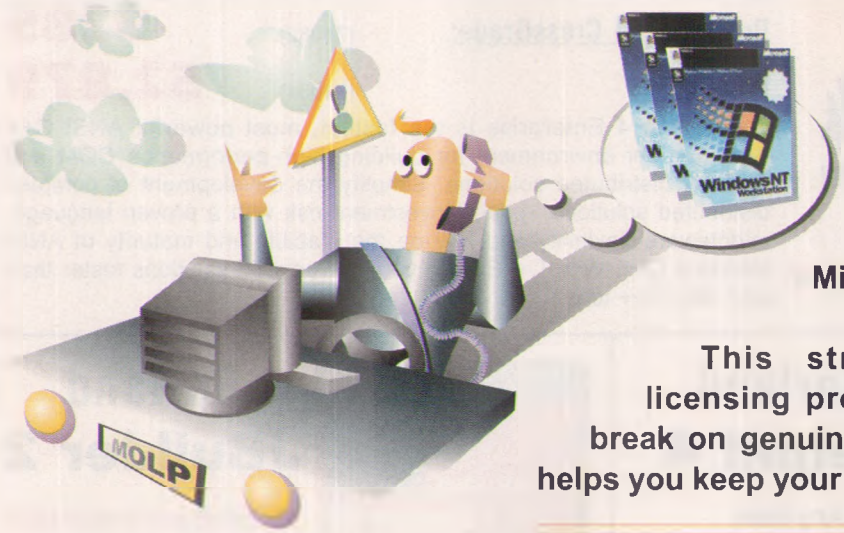
Microsoft®

Harris Technology can SAVE your business MONEY. Just phone our friendly call centre staff on (02) 9925 9925 for more information on Microsoft Open License products.

Save time, save money with...

Microsoft® Open License

When it comes to software, are you driving without a license?



Move your business into the fast lane with Microsoft Open License!

This straightforward volume-licensing program gives you a price break on genuine Microsoft software, and helps you keep your software legal.

Microsoft Open License will:

- Save you time
- Save you money
- Keep you legally compliant

Whether you are getting new software, upgrading to the latest version, or switching from a competitive product, there's an Open License just for you! Ask Harris Technology today for details on how you can save time, money, and resources with Open License.

Call Harris Technology on (02) 9925 9925 for licensing on:



Windows NT Server



Windows NT Workstation



Office 97



Office 97 Pro

HARRIS

Pricing** and specifications herein are subject to change without notice

Several finance methods available, subject to approval

Microsoft® Press

Web Direct www.ht.com.au/cat/mspress

MCSE Readiness Review Series

Microsoft make it 20% easier to pass your MCP Exams

Today training kits from Microsoft Press are used for self-paced and Internet/intranet-delivered training, classroom training supplements, and preparation for Microsoft Certified Professional (MCP) exams in over 40 countries worldwide. Look to Microsoft Press first to provide the authoritative source for training and professional certification preparation on Microsoft technologies, and get your career in gear.

20% Discount off the cost of doing Microsoft Certified Professional Exam!

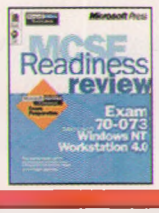
In every MS Press Training Kit (key titles listed below) you will find a discount coupon. The discount is valid from March 1 1999 - 31 July 1999. Discount is redeemable through VEU Testing Centres only.

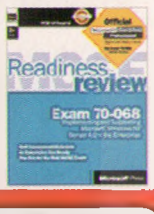
Title (Microsoft Press Training Kit)	Part #	Price
Ms Press MCSE Core Requirements Training Kit	(65577)	$448
Ms Press Certified Professional + Internet Training Kit	(65578)	$432
Ms Press Windows NT V4.0 Network Administrator Training	(38131)	$108
Ms Press SQL Server V7.0	(xxxxx)	Scall
Ms Press Exchange Server 5.5 Training	(56278)	$159
Ms Press TCP/IP Training	(57150)	$148
Ms Press Network Essentials 2nd Edition	(38133)	$147
Ms Press Windows NT® Technical Support Training	(38204)	$149
Ms Press Internet Information Server/Proxy Server Training	(61343)	$155
Ms Press Windows 98 Training Kit	(63776)	$148

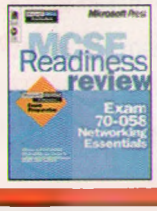


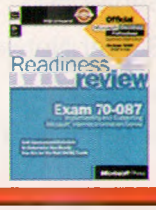
*The new **Microsoft Press Readiness Review** books and CDs help users practice answering MCP exam questions - sharpening their test-taking skill and identifying areas for further study. Randomly generated practice tests on CD deliver questions that map to actual MCP exam objectives. Users can test and retest with different question sets each time. The companion text offers points for understanding correct and incorrect responses, along with valuable test-prep suggestions to shore up performance.*

Title (Microsoft Press Readiness Review)	Part #	Price
EXAM 70-073 MICROSOFT WINDOWS NT WORKSTATION 4.0	(73159)	$55
EXAM 70-067 MICROSOFT WINDOWS NT SERVER 4.0	(73160)	$55
EXAM 70-068 WINDOWS NT SERVER 4.0 ENTERPRISE	(73162)	$55
EXAM 70-058 NETWORKING ESSENTIALS	(73158)	$49
EXAM 70-098 MICROSOFT WINDOWS 98	(73163)	$55
EXAM 70-087 MCSE READINESS REVIEW IIS 4.0	(73161)	$55









Sales 02 9925 9925
Fax 02 9925 9897

Website www.ht.com.au
E-mail sales@ht.com.au

Ground floor
275 Alfred St
North Sydney

Seagate Software

Web Direct www.ht.com.au/cat/seagate

Leading Backup Solution for NT

Backup Exec Windows 98



From the developers of the applets that Microsoft ship with DOS, Windows & Win98. Backup to most tape and backup devices, including CDW, DVD, DAT, Diskette, DLT, etc.

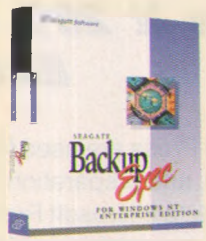
(66855) **$125**



Backup Exec for NT Workstation

(17406) **$199**

Backup Exec Server Editions



Single Server - protects one server and all attached workstations (69759) **$865**

Multi Server - Protects an unlimited number of servers to one backup server (the server with the tape device attached) (70745) **$1,910**

We have a wide variety of Seagate Software product which is too extensive to list all on one page. Why not give us a call or drop in on our Web Site and have a look.

If you cannot find it on the site, call and we will try to find it.

Some more popular Backup Solutions from Seagate

Exchange Agent Win NT 7.2

Protect your Exchange Servers with this reliable, intuitive and powerful add-on option to Seagate Backup Exec for NT (Single Server or Multi-server version required). Protect individual mailboxes including attachments/embedded objects.

$950 (71524)

Microsoft SQL Agent Win NT 7.2

Protect your Microsoft SQL databases down to table levels - simple to use and intuitive. Client server flexibility allows management of local and remote SQL backups. Supports SQL version 6.0 and version 6.5.

$950 (71270)

Remote Control DTMS

One of the fastest in the industry Supports NT & NetWare servers, DOS, Windows, Win95 and WinNT workstations. Also includes hardware and software inventory, software distribution & software metering.

50 nodes (72903) **$3,989**

100 nodes (72904) **$6,799**

Limited time offer for **GREAT PRICING**

Competitive Upgrades from ArcServe

SPECIAL RUN-OUT OFFER

If you are unhappy with the ease of use, reliability and support of ArcServeIT, call today for a reliable solution to your data protection problems. Seagate Backup Exec - the world's leading NT backup solution.

Single Server NT	7.2	(71591)	**$399**
Single Server Netware	8.0	(72901)	**$399**
Multi Server NT	7.2	(71593)	**$635**
Multi Server Netware	8.0	(67023)	**$635**

Server Monitoring - Seagate Manage Exec

Seagate Manage Exec provides pro-active server monitoring. Increase server uptime and availability. Works on NT or NetWare servers.Includes trend analysis. Simple to install & configure.
Web or NT 4.0 interface.

(72906) **$1,379**

nice price

APRIL

HARRIS

Pricing** and specifications herein are subject to change without notice

bankcard MasterCard VISA efpos AMERICAN EXPRESS

Several finance methods available, subject to approval

Seagate Software

Web Direct www.ht.com.au/cat/seagate

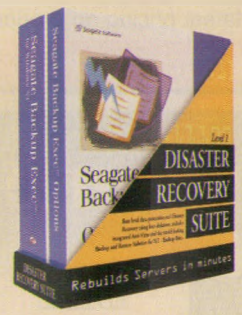
Leading Disaster Recovery

Seagate Backup Exec

From the developers of the utilities that Microsoft ship with NT 3.51, NT 4.0 & soon NT5

Key Features:

Intuitive User Interface	Wizard driven solution to make even the most complex backup routines and operations simple and easy to use, even for an inexperienced operator
Integrated Virus Control	Scans and cleans files prior to being backed up. Includes FREE updates for life and monthly reminders to download most recent virus signatures
Schedule backup Jobs	For unattended backup operations
Microsoft Compatable	From the developers of the utilities that ship with NT 3.51, NT 4.0 and NT 5.0 - reads MTF (Microsoft Tape Formats) for simple migration from the NT applet.



Disaster Recovery Suite

Rebuild a crashed NT server in minutes vs. hours using 4 diskettes and your last backup tape. Includes Backup Exec for NT 7.2 and Seagate Software IDR (Intelligent Disaster Recovery)

Product code: SBE-NTSE-DPS1 (72882)

$1,629

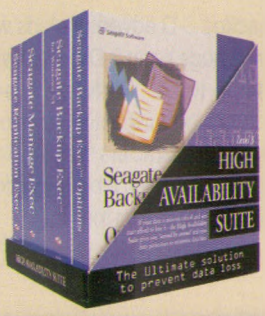


Disaster Prevention Suite

Helps stops server crashes using proactive server monitoring. Integrated trend anaysis enables fast problem resolution. Rebuild a crashed NT server in minutes vs. hours and includes a copy of the world's leading Backup Solution for NT.

Product code: SBE-NTSE-DPS2 (72884)

$2,980



High Availability Suite

For companies with mission critical data who can not afford to lose data between the last backup and a server crash. The ultimate in data protection. Includes 2x Replication Exec, 5x Manage Exec (server monitoring), 1x IDR and Multi-server version of Backup Exec for NT.

Product code: SBE-NTMS-DPS3 (72885)

$11,699

Sales 02 9925 9925
Fax 02 9925 9897
Website www.ht.com.au
E-mail sales@ht.com.au
Ground floor
275 Alfred St
North Sydney

Check latest pricing on product at:

Web Direct www.ht.com.au/cat/logitech

Logitech

Internet Video Cameras

QuickCam Home

NEW LOW PRICE

USB device that runs under Windows® 98 for a true plug-and-play experience. Capture colourful full-motion video and sharp, still images, send photo & video e-mail instantly. Meet face to face on-line.



(69969) **$205**

QuickCam VC

In less than 10 minutes, you can set up & begin exploring the world of visual communications. Create time-lapse movies and short videoclips, capture still images and more. Optimized for video conferencing.



(Parallel 70568 or USB 70567) **$168**



Logitech USB Wheel Mouse



Award winning comfort for both left and right hands, now with dual PS/2 and USB connections

(72398) **$79**

Deluxe 104 Keyboard

Start typing immediately with the Logitech Deluxe™ 104 keyboard. Easy installation and a standard 104-key layout make it easy. Quiet, full-size keys provide tactile feedback, making typing a pleasure. The detachable palm rest gives you new choices for comfort and extra flexibility.



(60467) **$49**

Internet Keyboard



17 Dedicated buttons providing on touch access to the Explorer or Navigator command you use most often. Programmable buttons that are easy to customise take you instantly to your favourite web site. 3 Year warranty.

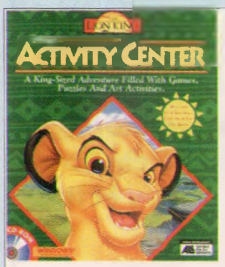
(60332) **$68**

Check latest pricing on product at:

Web Direct www.ht.com.au/cat/disney

Disney INTERACTIVE

Disney- Brings the magic home

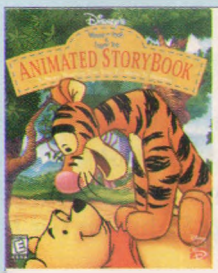


IDEAL FOR THE HOME

(59879) **$29**

Lion King Activity Centre

It is a jungle gym for the mind. Build memory, reasoning and spelling skills as Simba and his pals guide you through exciting new learning activities. There's even an art studio to encourage creative minds. Whether you play with a favourite character or a friend, Disney's Activity Center, The Lion King will provide hours of fun while you learn!



IDEAL FOR THE HOME

(74493) **$50**

Disney's Animated StoryBook: Winnie the Pooh and Tigger Too

Make story time extra special with two absolutely irresistible characters: Winnie the Pooh and Tigger Too! Everyone's favourite character, Winnie the Pooh, comes to life in this classic story of patience, acceptance, and camaraderie.



IDEAL FOR THE HOME

(74494) **$67**

Bug's Life Action Game

An action-packed 3-D adventure kids will love. Explore a huge living 3-D world that's never the same twice. Battle your way through 15 levels of pure action and fun, enlisting the help of characters from the film. Finish each level and you'll be rewarded with special video clips from the film.

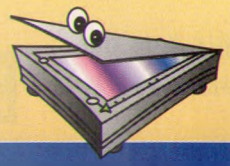
HARRIS

Pricing** and specifications herein are subject to change without notice

bankcard MasterCard VISA eftpos AMERICAN EXPRESS

Several finance methods available, subject to approval

AGFA
The complete picture.



Check out this Weblink address for the latest information!

Web Direct www.ht.com.au/cat/agfa

Making images work for you

SnapScan 1212p



One pass, high quality 600x1200 ppi scanner with parallel interface.
36-bit colour. Includes Omnipage OCR software and iPhoto Express.
Makes scanning easy!

(74495)
$249

SnapScan 1212u



One pass, high quality 600x1200 ppi scanner with USB interface.
36-bit colour.
Includes Omnipage OCR software and iPhoto Express.
Great for the whole family.

(74496)
$259

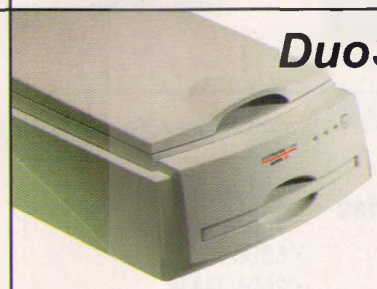
SnapScan 1236s



One pass, high quality 600x1200 ppi scanner with SCSI-2 interface. 36-bit colour. Includes Omnipage OCR software, iPhoto Express, Kai's Power tools SE, Bryce 2.0 SE, Convolver Full and Soap SE.

(74497)
$389

DuoScan T1200



TwinPlate™ flatbed scanner with SCSI-2 interface. 2400ppi for colour work, 3600 ppi for line-art. Features an automatic document feeder. Includes Caere OCR software and Corel Photo-Paint 8.

(74498)
$1,399

DuoScan 2T500



One-pass scanner with SCSI-2 interface. Up to 2500 ppi true optical resolution for professional results. TwinPlate™ with dual lens. 36-bit colour. Includes PhotoLook and ColorTune software.

(74499)
$8,399

ePhoto 780



Easy to use digital camera. Resolution up to 1024x768 pixels. Virtually no waiting between shots.1.8" LCD screen. 10 second self-timer. Up to 96 photos on one card. 4 flash settings.

(70188)
$725

ePhoto 1280



Outstanding, high resolution photos: up to 1289x960 pixels. 3x optical swivel zoom lens for pictures from any angle. 2" LCD screen. 5 and 10 second self-timer. Up to 60 photos on one card. 4 flash settings.

(54680)
$1,155

ePhoto 1680



Resolution up to 1600x1200 pixels for as photo-quality prints. 3x optical zoom, 2x digital zoom. 2" LCD screen. 5 and 10 second self-timer. Up to 48 photos on one card. 4 flash settings.

(72300)
$1,749

Sales 02 9925 9925
Fax 02 9925 9897
Website www.ht.com.au
E-mail sales@ht.com.au
Ground floor
275 Alfred St
North Sydney

HEWLETT PACKARD
Expanding Possibilities

Fast delivery Australia wide

For the latest info & pricing look here ⇩
Web Direct www.ht.com.au/cat/hp

HP Colour LaserJet & Inkjet Printers

Bring Colour Into Your Office

(Cost per page for 4-colour pages is at 20% coverage)

HP Colour LaserJet Series

HP Colour LaserJet 4500 Series



- 16ppm mono, 4ppm colour
- 600dpi
- 32MB RAM
- Cost per page: Black: 3.8c, Colour: 20.0c

From (70356)
$5,590

HP Colour LaserJet 8500 Series



- 24ppm mono A4, 6ppm colour A4, 3ppm colour A3
- 600dpi
- 32MB RAM
- Cost per page: Black: 3.3c, Colour: 17.9c

From (70355)
$13,780

HP Professional InkJet Series

HP 2000C Professional Series Colour Printers



- 10ppm mono A4, 4ppm colour A4
- 600dpi
- 2MB RAM
- Cost per page: Black: 5c, Colour: 21.1c

From (69484)
$1,344

HP 2500C Professional Series Colour Printers



- 9ppm mono A4, 7ppm colour A4, 1ppm colour A3
- 600dpi
- 4MB RAM
- Cost per page: Black: 5c, Colour: 21.1c

From (70725)
$2,097

The HP 2000 and 2500 use HP's Modular Ink Delivery System

Call our friendly Call Centre staff to help you choose the right HP LaserJet or InkJet printer for your needs on (02) 9925 9925

Breakthrough cost of ownership with HP's new Modular Ink Delivery System

Traditional inkjet printers use one black and one tri-colour ink cartridge, each with the printhead built in. HP's modular ink delivery system features four separate ink cartridges - one for each primary printing colour - an four corresponding long-life printheads, with tubes connecting the components.

How it works

By separating the ink cartridge form the printhead, a modular ink delivery system allows the ink supply to remain in a permanent, fixed position. The printheads remain attached to the carriage and move back and forth, delivering ink to the page as the paper advances through the printer. Smart chips monitor the amount of ink used, so ink supply is instantly replenished, even at top speeds.

The new, individually replaceable printheads are designed for long life. The cartridges contain twice the ink supply of current HP cartridges. Smart chips will let you know when to replace a component.



The benefits

- By separating printheads and ink cartridges, you only replace the component that is no longer usable
- Cuts up to 30% off the printing costs over other desktop printers
- Longer-life printheads and higher-capacity ink cartridge means less frequent replacement
- Achieves colour laser speed in a personal dektop printer

GREAT PRICES ON TOP BRAND MULTI-MEDIA



Complete one of these great deals with a ViaGrafix tutorial. Teach yourself anything from PC Maintenance to Web Page Publishing – there's even Computing for Kids!

See page 23

CHECK 2000
9 MONTHS TO GO!

INTERNATIONAL

SOFTWARE WAREHOUSE

Pty. Ltd.

ACN 076 093 644

PART OF A $250 MILLION TECHNOLOGY COMPANY

April 1999 Issue

UNBEATABLE VALUE!!



Save $30

See page 17



See page 2

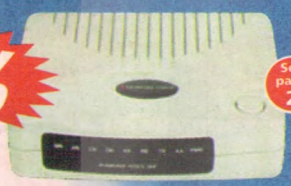
CD-RW Only $499



See page 21

Save over $500

Only $139



See page 2

32Mb SDRAM for just $89!!



See page 36

SOFTWARE
COMPUTERS
PERIPHERALS
MODEMS
STORAGE
MONITORS
PRINTERS

ONE STOP



See page 20

Special Prices Limited time only



See page 9

Flatbed Scanner only $149

Chance to WIN $20,000



See page 38

New 250Mb ZIP

COMPUTER SHOPPING

M.Y.O.B.

See page 13

INTERNATIONAL SOFTWARE WAREHOUSE Pty. Ltd.

EVERYTHING FOR YOUR PC - DELIVERED NATIONWIDE!

WEBSITE

We have a new website address:

www.iswh.com.au

If you have visited our website before, we invite you to take another look. You will find it has changed quite dramatically. More information, more products and more importantly, more great deals! Thousands of products, all at the best prices. Whether you are looking for information, or want to place an order, make sure you pay us a visit first!



Hello, and welcome to March Madness at International Software Warehouse! Once more we bring you pages of top deals, all at the best prices. The fork lift truck logo is your guarantee of our commitment to value. Each month we negotiate with our suppliers to get fantastic offers out to you. If there is anything you would like to see more of, email me on feedback@iswh.com.au

If you are looking at volume purchases this month, give our corporate sales team a call. They are fully trained on Microsoft, Adobe, Symantec and other licences. They can also give bulk pricing on hardware. We would welcome the opportunity to quote for your requirements, and remember, we do operate a price pledge. Whether it be licenses or retail products, if you find a cheaper price elsewhere, call us. We will always do our best to beat it.

Have you looked at our website recently? If not, please take a peek. You will find all the same great offers and more, plus the latest information on featured products. We also have a feedback form so you can tell us what you like and what you would like to see more of. If you are not on the internet yet, call our friendly sales team and they can get you started.

Phil Webb

Phil Webb
Managing Director

CD-RW

Only $499



A 6x read, 2x write, 2x re write drive for under $500. This drive comes with CD authoring software, and is a great budget drive for CD burning.
Limited stocks

OFF007 $499

APRIL ANARCHY

Kodak CD-R Discs

$2.70 each

Traxdata/Princo Rewrite Discs

$9.50 each

Textbridge Pro 98

Only $49

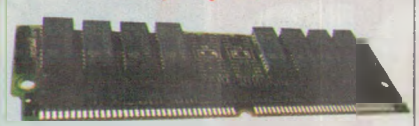


The award winning Textbridge Pro 98 is available for a limited period for just $49!! when bought with any scanner.
Limited stocks

XER007 $49

Memory

32Mb SDRAM for just $89!!



See p36 for more details.

40x CD ROM

Only $99

Unbelievable. A blistering 40x CD drive (6000Kb/sec data transfer rate) for under $100!



OFF006 $99

UMAX 610P FLATBED SCANNER

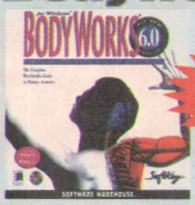
Only $149

Unbelievable! A colour flatbed scanner for only $149! This 30 bit parallel port scanner (easy installation) is ideal for general purpose scanning, whether it be documents, pictures or photographs. It even comes with a pass through port so you can leave your printer connected.
For more information, see p37 for this amazing offer.



UMA011 $149

Bodyworks V6



Only $19

The complete multimedia reference and learning tool for the human body.
Whether you are looking for an in depth answer to a question, or just want to learn more about the human body - Bodyworks is the most informative and educational way to do it.

BOD010 $19

56k Modem

Only $139

An external 56k V90 modem for only $139!! Another unbeatable offer from International Software Warehouse. Drive may differ from one pictured above.



OFF009 Limited stock only $139

6x DVD ROM



Only $399

6x DVD ROM drive
Experience tomorrows' technology today with this 6x DVD ROM drive,from AOpen.
OFF008 ...$399

OFF008 $399

All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

For the cost of a local call Orderline 1300 300 003 or 02 9700 8800
Sales Lines Open 9am 'til 6pm Monday to Friday and 10am 'til 3pm Saturday.
VISA MasterCard BPAY

INTERNATIONAL

SOFTWARE WAREHOUSE Pty. Ltd.

Microsoft

FIND IT CHEAPER? CALL US - WE WON'T BE BEATEN!*

*See page 48 for Price Pledge

April offer from WAREHOUSE

Office Value Pack pay $579 - $50* = $529

Rebate from Microsoft

Unbelievable!!



Find it cheaper? Call us. We won't be beaten!

WIN!! Buy an OVP from us in April & you will automatically get entered into our draw to win an EPSON Stylus Colour 740!!

* Simply fill in the registration card in the box, and send it to Microsoft. They will then send you a cheque for $50. Simple!

Stop Press - FREE Upgrade to OFFICE 2000 Premium!

It just gets better and better! Buy the Office Value Pack and get a free** upgrade to Office 2000 when it is launched later this year. Details are in the box. If you have any queries, simply call our Sales team on 1 300 300 003. **The software is free. Microsoft will charge a nominal shipping and handling fee.

All this for $529!! (After MS Rebate*)



Valued	Valued	Valued	Valued	Valued	Valued	Valued
$499	$75	$69	$149	$45	$89	$89

= $1015

Save $486

MS Office Value Pack
MSS140
$579

Microsoft Office 97

From $389!

Buy any version of Microsoft Office 97 and get a free** upgrade to the corresponding Office 2000 product.



Guide to MS Office pricing

If you have ten PCs or more then call our corporate team as you will be able to make substantial savings by entering into a MOLP agreement. If you are looking for single copies or small quantities please refer to these charts.

Upgrade: If you currently use any version of either MS Word, MS Excel, MS Access, MS Powerpoint or MS Works then you qualify for the upgrade.

Competitive Upgrade: Ask our knowledgeable sales staff which product you are able to upgrade from.

New User: If you do not qualify for either of the above then new user pricing applies.

Office 97	New User		Upgrade or Comp. Upgrade	
Standard	MIC628	$739	MIC629	$379
Pro (Free MS Bookshelf Basic)	MIC631	$909	MIC632	$499
Developer (Free Microsoft Bookshelf Basic)	MIC930	$1239		$Call

Please note: Office 97 is ONLY available on CD. Disk exchange is available via Microsoft for a small charge

Office 98	New User		Upgrade	
For Mac	MSS094	$769	MSS137	$459

Educational Pricing is now available for all Office Products

Call for Pricing.....

EDUCATIONAL pricing AVAILABLE

Microsoft Office 97, the latest version of the world's best-selling office suite, integrates intelligent application with the power of the Internet. It is designed to help you get organised, get connected, and get professional results with ease. Also included is Microsoft Bookshelf Basics for quick access to the reference tools you need most.

Buy any version of MS Office with PhotoDraw 2000 and get a FREE** upgrade to Office 2000 Premium

Includes:

* **Word 97:** Word 97 sees major improvement with intellisense and completed with new grammar checking.
* **PowerPoint 97:** New drawing and charting features, seamless web integration via Explorer 3.0 and an improved interface make your PowerPoint presentations quicker to produce and deliver even more impact!
* **Excel 97:** New in Excel 97 are drag and drop page breaks, auto-resizing when you print and text rotate.
* **Access 97:** Seamlessly integrates with the Visual Basic custom development environment, to enable powerful, despoke business application to be constructed within the Office 97 Pro environment.
* **Outlook 97:** Outlook is designed to help you easily manage your desktop including email, a calendar and file/documents all from a common work area.

Microsoft Graphics Studio PhotoDraw 2000



Easily create custom graphics for Microsoft Office documents and the Web.

Now business users can create professional-looking artwork to enhance their marketing materials without having any graphics design experience - Microsoft PhotoDraw combines powerful illustration and photo-editing in one easy-to-use program that works just like Microsoft Office.

MSS197 Microsoft PhotoDraw 2000..... $229

ATTENTION IT MANAGERS

Microsoft is also offering the Technology Guarantee free** upgrade on MOLP purchases. So there has never been a better time to buy Microsoft licencing.

Call our Sales Team on 1 300 300 003 to discuss your requirements.

A-Z INDEX

3Com.....45,46
Acer.....37
Adaptec.....43
Adobe.....21
AOpen.....35
APC.....44
ATI Technologies.....35
Autodesk.....24
Canon.....6
Caere Corporation.....8
Corel.....18,32
CNS.....5
Creative Pacific.....35
D-Link.....45
Daewoo.....40
Dependable Database Data.....27
Diamond (Modem).....46
Diamond.....40
Digital Workshop.....22
Dragon Systems.....14
Dr Solomons.....30
DtMS.....26
Epson.....6
FileMaker Inc.....16
Greenwich Mean Time34
Hauppauge.....42
HP.....4,5,7,8,36,45
Iomega.....38, 41
IMSI.....15,20,25
Intuit.....12
JASC.....22
Kiss Co.....30
Kodak.....43
Logisoft.....12
McAfee.....30
Macromedia.....19
MAUS.....17,18
Meta Creations.....19
Microsoft.....3,10,11
Microtek.....9
Millenium Buster.....33
MYOB.....13
Pinnacle Systems.....41
Powerquest.....31
Quantum.....39
Qudos.....16
Seagate.....38,39
Sirius Technologies.....47
Smith Micro.....30
Sony.....35,37,43
SupportNet.....12
Symantec.....28,29
Toshiba.....4
Travelling Software.....27
Umax.....9,40
V Communications.....30
Viagrafix.....23
Visio.....24
Vision Beyond 20/20.....42
Winzip.....32

Joanne



All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

Orderline 1300 300 003 or 02 9700 8800 Order by fax 02 9700 8801
Enquiries 02 9700 8800 Internet site www.iswh.com.au
13 Bradford Estate
10 Bradford St
Alexandria
Sydney 2015

INTERNATIONAL SOFTWARE WAREHOUSE Pty. Ltd.

EVERYTHING FOR YOUR PC - DELIVERED NATIONWIDE!

Xircom PC Cards

Xircom offers a full line of of high speed PC card solutions that meet notebook users diverse communications needs in the office and on the road. Whether it's a 16bit PC Card or 32bit Cardbus solution and modem, Lan or Lan+Modem functionality, Xircom has reliable,easy to use products for accessing information on corporate networks, the Internet, Intranet or other online resources.

XIR065 CreditCard Ethernet 10/100 + Modem 56...$579



XIR269 CreditCard Ethernet 10/100$269



XIR036 CreditCard Modem 56-GlobalACCESS.....$319



HP OMNIBOOK 2100

The corporate value notebook. The HP Omnibook 2100 gives you a complete corporate notebook at an entry level price.

- Pentium II 266MHz CPU
- 32Mb RAM (expandable to 96Mb)
- 4.0Gb HDD
- 24x CD-ROM
- 1.44Mb FDD
- 12.1" SVGA TFT Display
- 16 bit Soundblaster compatible soundcard
- Windows 95

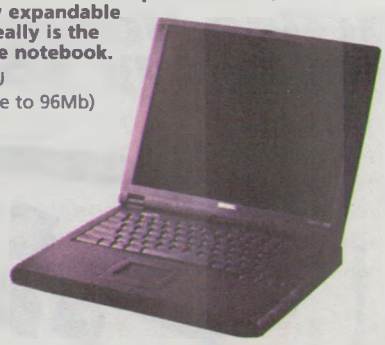


HPN019.....**$3769**

HP OMNIBOOK 4100

The HP Omnibook 4100 has the advanced processor and display performance of a desktop PC in a thin, lightweight and easily expandable portable package. It really is the corporate performance notebook.

- Pentium II 266MHz CPU
- 32Mb RAM (expandable to 96Mb)
- 4Gb HDD
- 24x CD-ROM
- 1.44Mb FDD
- 14.1" XGA TFT Display
- 16 bit Soundblaster compatible soundcard
- 3 hour Lithium Ion battery
- Only weighs 2.6kg
- Windows 95



HPN020.....**$4349**

THE OMNIBOOK FAMILY

CODE	PROCESSOR	RAM	HDD	CD DRIVE	DISPLAY	OS	WARRANTY	PRICE INC TAX	
HPN013	Pentium II 266MHz	32Mb	4.0Gb	24x	12.1" TFT	Win 95	1 year	$3,769	OB 2100
HPN014	Pentium II 300MHz	64Mb	4.0Gb	24x	13.3" TFT	Win 95	1 year	$6,249	OB 2100
HPN015	Pentium II 266MHz	32Mb	4Gb	24x	14.1" TFT	Win 95	3 year	$4,349	OB 4100
HPN016	Pentium II 300MHz	64Mb	6.4Gb	24x	14.1" TFT	Win NT	3 year	$6,949	OB 4150
HPN017	Pentium II 266MHz	32Mb	8.1Gb	24x	14.1" TFT	Win NT	3 year	$6,539	OB 7100
HPN018	Pentium II 300MHz	64Mb	8.1Gb	2xDVD	14.1" TFT	Win 95	3 year	$8,259	OB 7150

NOTEBOOK PRICES CAN FLUCTUATE. CALL 1 300 300 003 FOR LATEST PRICING.
ALTERNATIVELY, CHECK OUT OUR WEBSITE: WWW.ISWH.COM.AU

TOSHIBA NOTEBOOKS





MODEL	PROCESSOR	RAM	HDD	CD	DISPLAY	WARRANTY	WEIGHT	PRICE	STOCK CODE
Satellite 2520CDT	AMD K6-2 300	64Mb	4Gb	24x	12.1 TFT	1 year	3kg	$3769	TOSH19
Satellite 4030CDT	Intel Celeron 300	64Mb	4Gb	24x	13.3 TFT	1 year	3kg	$5539	TOS020
Satellite 4060XCDT	Intel PII 333	64Mb	4Gb	24x	14.1 TFT	1 year	3kg	$5205	TOSH20
Portege 3020CT	Intel 300MMX	32Mb	6Gb	Option	10.4 TFT	3 years	1.3kg	$3989	TOSH21
Tecra 8000 233	Intel PII 266	64Mb	6Gb	24x	13.3 TFT	3 years	3kg	$5629	TOSH22
Tecra 8000 333	Intel PII 333	64Mb	6Gb	24x	13.3 TFT	3 years	3kg	$6479	TOSH23
Tecra 8000 366	Intel PII 366	64Mb	10Gb	24x	14.1 TFT	3 years	3kg	$8389	TOSH24

Both the Tecra 333 and Tecra 366 include 56k DSVD modem!



All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

For the cost of a local call **Orderline 1300 300 003 or 02 9700 8800**

Sales Lines Open 9am 'til 6pm Monday to Friday and 10am 'til 3pm Saturday

FIND IT CHEAPER? CALL US - WE WON'T BE BEATEN!*

*See page 48 for Price Pledge

HP Brio Range

Great Savings

Finding a reliable system that gives you the most performance for your money is no easy task. The new family of HP Brio PCs covers a range of configurations to suit every need and budget. The Brio range gives you BIG performance at small prices. And for a limited time, the Brio range comes with an upgraded monitor and a 10/100TX network card for no extra charge.

- **Intel Inside**
- **3 year warranty**
- **32x CD ROM**
- **Windows 98 OS**



HP Brio 333A

- Intel Celeron A 333MHz CPU
- 32Mb RAM
- 4.3Gb HDD
- 32x CD ROM
- On board Audio
- Win 98
- 3 year warranty

Bonus while stocks last: • 15" monitor • 10/100TX Network Card

HPB001 **$2039**

HP Brio PII 350

- Intel Pentium II 350MHz CPU
- 32Mb RAM
- 4.3Gb HDDD
- 32x CD ROM
- On board Audio
- Win 98
- 3 year warranty

Bonus while stocks last: • 15" monitor • 10/100TX Network Card

HPB002 **$2439**

HP Brio PII 400

- Intel Pentium II 400MHz CPU
- 64Mb RAM
- 8Gb HDD
- 32x CD ROM
- On board audio
- Win 98
- 3 year warranty

Bonus while stocks last: • 17" monitor • 10/100TX Network Card

HPB003 **$3099**

CELERON 333 VALUE PC

$1299!

Designed for the home or the office, this Value PC comes with a great spec at a fantastic price. $1299 gets you a genuine speedy Intel Celeron processor, a 4.3Gb hard drive to cope with large software applications, and is completely upgradeable should you wish to increase the specification at a later date. This system is ideal as a starter machine for the home, or as a budget network PC with full multimedia capabilities.

System Specifications:

- Minitower case
- Intel Celeron
- 333Mhz CPU
- 32Mb SDRAM
- 4.3Gb Hard Disk Drive
- 40x CD ROM drive
- 2Mb 3D Graphics Card
- 16 bit soundcard
- 14 inch monitor
- Windows 98

UPGRADES:
Need a slightly different specification? Talk to our friendly trained sales team. they will discuss your requirements, and tailor a system to suit you. Whether it be extra RAM, an upgraded modem or a modem for internet access, our team can find the right specification for your needs. Call 1300 300 003



VPC001 Celeron 333 Value PC $1299



The new HP Jornada 820 Handheld PC provides email and Internet access, convenient personal information management and the functionality of Microsoft Windows CE - all in a portable, affordable package.

Featuring a comfortable, touch typeable keyboard plus an integrated touch pad, 10 hours of battery life and instant-on power, the HP Jornada is the perfect companion to your desktop PC.

Includes a built in 56k modem, voice recorder and pocket versions of Microsoft Word, Excel, Access, Powerpoint, Outlook and Internet Explorer.

HPH001

$2099

Matthew



All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

INTERNATIONAL SOFTWARE WAREHOUSE Pty. Ltd.

EVERYTHING FOR YOUR PC - DELIVERED NATIONWIDE!

Epson Ink Cartridges

EPS334 So20187 BLK$39
EPS335 So20191 CLR.....$45
EPS333 So20189 BLK$45
EPS304 So20108 BLK....$45
EPS303 So20089 CLR....$45
EPS145 So20110 PHOTO..$45
EPS069 So20093 BLK ...$39

Epson Paper

EPS321 So41140 PHOTO ..$25
EPS322 So41142 PHOTO ..$55
EPS161 So41063 TRANS ..$89

Canon Ink Cartridges

CAN063 BC02 BLK.....$55
CAN008 BC03 BLK$55
CAN064 BC05 CLR$69
CAN007 BC06 PHOTO CLR$65
CAN023 BC06KIT PHOTO CLR$79
CAN231 BC10 BLK$75
CAN024 BC20 BLK$65
CAN065 BC22EKIT PHOTO CLR$109
CAN084 BC11C CLR.....$39
CAN068 BC11BK BLK ...$25

Call our sales team on 1300 300 003 for a complete range of Epson and Canon cartridges and paper.

EPSON Stylus Color 740

An outstanding combination of print quality and performance



This latest state-of-the-art technology meets the demands of the power colour user. By combining EPSON's new Variable-Sized Droplet technology and Ultra Micro Dots with EPSON's PerfectPicture Imaging System, the EPSON STYLUS COLOR 740 has created a new standard of image quality for the SOHO environment.

- Variable-Sized Droplet technology delivers a precisely controlled blend of small, medium and large ink droplets - the result is greater detail, and smoother halftones and graduations.
- Ability to produce true 1440 x 720 dpi printouts even on plain paper means you can include eye-catching colour charts and graphics in all printed material.
- PC and Macintosh compatible and features a parallel, serial and USB port.
- Increased printable area means you can set the margin to 3mm on all four sides of an A4 page - perfect when printing enlargement of your favourite photo.

EPS330 EPSON Stylus Color 740 **$489**

EPSON Stylus Photo 700

The 1440dpi Photo Printer for home printing needs!



Combining the superior performance of EPSON's PerfectPicture Imaging System and 1440 dpi print resolution this printer offers photographic quality colour and sharp black text printing as standard - perfect for all home printing needs. It uses 6-colour QuickDry inks, that add light cyan and light magenta to the traditional palette of cyan, magenta, yellow and black. There's really no limit to the fun you can have with and EPSON STYLUS PHOTO 700. Printing your own pictures is only the beginning - you can also print Internet website pages with amazing speed and clarity. And to expand your horizons even further, there's a wide range of special papers and other media that let you create greeting cards, T-shirt transfers and more.

Now you have **THE POWER TO CREATE.**

EPS312 EPSON Stylus Photo 700 **$419**

EPSON Stylus Color 850

High Performance, High Quality



The EPSON Stylus Color 850 is a revolutionary new printer targeted at business and professional graphics users wanting maximum colour output combined with speed and professional graphics. It features 1440dpi resolution and high speed printing capabilities making it the ideal printer for busy professionals. The COLOR 850 is designed for multi-platform compatibility and easy networking. An optional PostScript RIP (StylusRIP) enables it to be converted to a low-cost PostScript colour printer.

Stunning Quality

EPS315 EPSON Stylus Color 850 **$639**

EPSON Stylus Photo EX

A3 Photo Quality Printing



With A3 Photo Reproduction Quality as standard, 1440 x 720 dpi resolution and 6-colour QuickDry Inks, the EPSON Stylus Photo EX is the ultimate photo printer.

It uses the latest technology to produce true photo quality output - up to A3 in size, max print width is 291mm making it the perfect colour printing solution for photographic enthusiasts, graphic designers and in-house publishers.

It supports both Windows and Macintosh colour matching systems, which together with EPSON's PhotoEnhance 2 function ensures colour photographs are optimised for colour and exposure values. And, with the optional StylusRIP the EPSON Stylus Photo EX can easily be upgraded to a PostScript printer giving you more **POWER TO CREATE.**

A3 6 Colour

EPS316 EPSON Stylus Photo EX **$759**

Canon

Select the BubbleJet™ printer that's right for you

BJC-255SP

Super Performance, Brilliant Colour.



Features

- Super Economy mode to cut operating costs.
- Plus a fast, high capacity, black ink cartridge.
- Print up to 2400 pages in B&W and 600 colour pages per cartridge.
- Photo Mode for spectacular plain paper colour.
- Gold standard photographic printing with optional PhotoRealism inks.
- Plus better Internet printing for images and text.

CAN235 Canon BJC-255SP Printer **$145**

BJC-4310SP

Just about everything you could want, and a little bit more.



- Super Economy for low-cost colour and B&W printing.
- Print up to 3600 B&W pages with BC-20 cartridge, and 800 B&W and 400 colour pages with BC-21e cartridge.
- Optional PhotoRealism inks for gold standard photo quality printing.
- High speed black cartridge prints up to 4.5 pages per min.
- Banner printing up to 6 A4 pages in length.
- Better Internet printing with Image Optimiser.
- Automatic Feed holds up to 100 sheets.

CAN094 Canon BJC-4310SP **$199**

BJC-80

Uses half your briefcase not half your desktop!



- Drop Modulation Technology™ - the dual drop size breakthrough that produces smoother colour gradations.
- Office laser quality finish and B&W speeds up to 4.5 pages per minute with dedicated black cartridge.
- Better Internet images with Image Optimiser.
- Windows 95 compatible IrDA infrared port for cable-less communications.
- Optional scanner head for colour graphics, OCR and faxing.
- Fits in half a briefcase, weighs only 1.4Kg!
- International warranty included with purchase.

CAN001 Canon BJC-80 Portable Printer **$335**

BJC-4650



- Full colour printing up to A3 - for CAD, DTP and design work.
- Convert your printer into a colour scanner with the optional scan head.
- Automatic switching for Windows and Macintosh.
- PhotoRealism, the gold standard, near silver-halide photographic quality.
- Drop Modulation Technology™ for improved colour gradations, on any paper.
- Economical colour print head for plain paper printing.
- Image Optimiser improves quality of images down-loaded from the Internet.
- Optional high-speed black ink cartridge for B&W printing.
- Fluorescent ink option for signs and retail displays.

CAN218 Canon BJC-4650 Printer **$410**

All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

For the cost of a local call **Orderline 1300 300 003 or 02 9700 8800**

Sales Lines Open 9am 'til 6pm Monday to Friday and 10am 'til 3pm Saturday.

DON'T FORGET TO ASK FOR YOUR FREE GIFT

HP DeskJet 880C Printer

HP's fast, versatile, brilliant photo-quality printer for business or home.

The HP DeskJet 880 is packed with features to make your special projects shine. Exclusive PhotoREtII colour layering technology produces brilliant photo-quality colour on any paper. ColorSmart II means you get on paper what you see onscreen and laser-quality black text gives your documents a professional look.

- up to 8 ppm black & 5 ppm colour
- resolution 600 dpi black & HP PhotoREtII colour
- ColorSmartII gives you perfect colour automatically
- HP inks dry fast for smudge-resistant text and photos
- Print on a variety of papers
- Use photo's to personalise cards, calendars, t-shirts - even billboards and banners

HEWLETT PACKARD Expanding Possibilities



HWP355 HP DeskJet 880C **$569**

HP DeskJet 695C Printer

The Printer for Easy, Quality Colour Results!

The affordable printer for easy, quality colour results and optional photo quality printing.

- 5 pages per minute black
- 1.7 pages per minute colour printing
- HP's RealLife Imaging System, incorporating HP ColorSmart II technology
- Prints on Plain and special papers, transparencies, labels, envelopes and banner paper
- Optional HP Photo Cartridge with built-in HP PhotoREt for lifelike, photo-quality colour
- Window NT 4.0, 98, 3,1x and many MS-DOS applications
- Black and up to 16.7 million colours

Key Features:

- 600x600dpi black resolution and 600x300dpi colour resolution
- 100 sheet input capacity
- Parallel interface
- 1-year limited HP warranty

Included in the Box:

- power adapter
- black print cartridge
- colour print cartridge
- printer software
- user's guide

HEWLETT PACKARD Expanding Possibilities



HWP365 HP DeskJet 695C **$259**

HP DeskJet 710C Printer

HP's brilliant photo-quality colour printer at the right price.

HEWLETT PACKARD Expanding Possibilities

The HP DeskJet 710C makes everything you print look great, even on plain paper. With HP's RealLife Imaging System, brilliant photo-quality colour printing is easy. Built-in ColorSmart II gives you perfect colour automatically, so what you see on screen is what you get.

- up to 6 pages per minute black, 3 pages per minute colour
- resolution 600 dpi black, HP PhotoREt II colour
- built-in photo-quality color
- exclusive HP inks dry fast for smudge-resistant text and photos
- handles a variety of papers, including plain and special papers, envelopes, transparencies and banners
- compact design and quiet operation ideal for small workspaces
- easy setup and operation provide hassle-free printing
- compatible with Windows NT 4.0, 98, 95, 3.1x and MS DOS applications through Windows 98, 95 and 3.1x



HWP346 HP DeskJet 710C **$329**

HP LaserJet 1100 & 1100A Printer

HP LaserJet 1100

It's the new, improved personal laser printer standard



- 8 pages per minute rated engine speed
- 2 MB RAM handles complex documents with ease
- Improved print quality produces better graphics and images
- 125 sheets bin capacity
- Enhanced driver allows manual duplexing and N-up printing
- HP UltraPrecise Toner Cartridge for improved gray scale images
- Parallel cable in the box
- Windows 3.1, 3.11, 95, 98, NT 4.0, OS/2 and DOS
- JetPath technology allows you to add copying and scanning capabilities

HEWLETT PACKARD Expanding Possibilities

HWP257 HP LaserJet 1100 **$789**

HP LaserJet 1100A

All the features of the 1100 plus Print - Copy - Scan

- All-in-One functions bring efficiency to the desktop and save desk space
- Copy with the touch of a button, with or without the PC on
- Scan hard-copy documents and turn them into electronic images for editing, filing, and communicating via e-mail and PC fax
- Automatically feed up to 20 sheets for copying and scanning
- Network connectivity with optional HP JetDirect External Print Servers

HWP258 HP LaserJet 1100A **$965**

HP OfficeJet 710

Four in one system, Printer, Fax Copier and Scanner - All in Colour!

Features:



- All-In-One - Photo-quality colour printing with PhotoREt, Full-featured plain paper fax with new colour faxing, Scan-to-email to quickly send colour documents to any email address, Convenient, full-colour copying, Smooth, efficient integration.
- Print - Create professional reports, flyers and presentations in brilliant colour with HP PhotoREt and optional photo cartridge, Up to 5 ppm black and 2 ppm colour, Versatile printing on plain paper, transparencies, premium inkjet paper, photo paper, iron-on T-shirt transfers, envelopes, and card stock, Convenient single-envelope feeder, plus tray for 10 envelopes.
- Fax - Full-featured plain paper fax, plus new colour fax, Standalone black & white faxing (PC not required), so you can send and receive faxes immediately, PC-assisted colour faxing, Speed dialling and automatic redial, Large, 50 page memory saves important faxes any time tray runs out of paper.
- Scan - Scan photos directly into Adobe PhotoDeluxe Business Edition, Caere OmniPage Limited Edition OCR software lets you scan text directly into your word processing program so you can use and edit it, TWAIN compatible for easy insertion of images into your software applications, Includes four scan/copy sleeves for photos and other fragile originals.
- Copy - Convenient full-colour copying saves you time, PC not required for black & white copies, PC-assisted colour copying saves trips to copy centre, Easy reduction/enlargement and collation.

HEWLETT PACKARD Expanding Possibilities

HWP369 HP OfficeJet 710 **$965**

HWP213 HP OfficeJet 635 **$785**

HP Ink Cartridges

AUC122 51645AA BLK	$59
HP1007 51649AA CLR	$59
AUC114 C1816AA PHOTO	$65
AUC108 C4583A KIT CLR	$95
AUC123 51641AA CLR	$59
HWP344 C1823AA CLR	$69
AUC111 51625AA CLR	$59
HP1016 51629GA BLK	$35
HP1006 51626AA BLK	$59
HP1008 51629AA BLK	$59
AUC118 51640AA BLK	$59

HP Toner

AUC125 C3906A	$99
AUC134 C3909A	$279
AUC127 92275A	$165
HWP056 92298A	$155
AUC124 92274A	$135
AUC126 C3903A	$145
HWP001 C4092A	$109

Call our sales team on 1300 300 003 for a complete range of HP Supplies.

Sanaz



All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

INTERNATIONAL SOFTWARE WAREHOUSE Pty. Ltd.

EVERYTHING FOR YOUR PC - DELIVERED NATIONWIDE!



PAGIS PRO 2.0

4 POWERFUL SCANNING PRODUCTS IN 1 EASY TO USE PROGRAM!

The ultimate scanning suite for both photos & documents!

More than high quality colour scanning, Pagis Pro 2.0 offers incredible time-saving features like visual filing, Pro OCR, photo-editing, colour copying, faxing, forms fill-in, annotations, easy E-mailing of colour photos and so much more. Now discover all the ways Pagis Pro will make your scanner more valuable.

XEROOS

$229

HP ScanJet 3200C

Easy to use scanner for excellent results.



This one pass colour and mono flatbed scanner is so easy to use that you will be scanning in minutes. It offers a complete and versatile solution for photo's text and more. HP software guides you through each scan in a few easy steps and even scans directly to or from your software application and HP Intelligent Scanning Technology delivers great results automatically.

Features:

- resolution 600dpi optical; 600 x 1200 hardware; 9600dpi enhanced
- less than 90 seconds for 4x6" colour photo, less than 2.5 mins for full page text, less than 2.5 mins for black & white drawing
- 30-bit internal hardware
- maximum document size - 216mm x 297mm
- includes CD-Rom with HP PrecisionScan LT scanning software with OCR and Adobe PhotoDeluxe
- supports multiple file formats
- enhanced parallel interface for Windows 95 or 98
- includes parallel cable and power cord

HPS027 HP ScanJet 3200C $189

HP ScanJet 4100C

The easiest scanner for home

If you need an easy scanning solution, try the HP ScanJet 4100C. Everything you need for unmatched ease and convenience is right in the box, including software to scan, copy, make changes, store or print.



- Guided workflow for quick results.
- Front panel scan and copy buttons.
- Easy to set up and fast operation with Universal Serial Bus (USB).

4100C Features

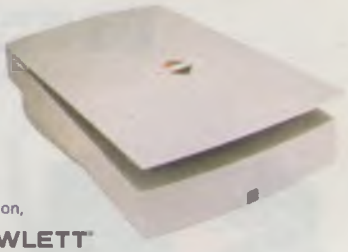
- Push button scanning
- Dual image scanning
- Auto descreen/deskew
- Integrated OCR
- 36-bit colour image processor
- Scan direct to application (drag & drop)

HEWLETT PACKARD
Expanding Possibilities

HPS030 HP ScanJet 4100C ONLY $275

HP ScanJet 5200C

Highest productivity for business



- 600dpi optical, 9600dpi enhanced
- On-line e-mail and web task software
- USB and Parallel Port capable
- Completes scan job twice as fast as before.
- Scan line art for enlargement with no loss of quality.

All the features of the 4100C plus:

- Additional software - Adobe PhotoDeluxe Business Edition, valued at $99
- Line art enhancement
- Preview outline by region type
- Auto page format retention

HEWLETT PACKARD
Expanding Possibilities

HPS026 HP ScanJet 5200C $465

OmniPage Pro v9.0 Upgrade

The World's Best OCR Just Got Better

OMN021 OmniPage Pro 9.0 U/G OEM

caere

Valued at $348 - Save $129

OmniPage Pro 9.0, the latest version of the world's best-selling optical character recognition (OCR) software, lets you quickly and easily convert scanned pages into computer-editable documents, more accurately than ever before. Other new features include enhanced integration with Microsoft Word, and multithreading for faster processing.

ONLY $199 (OMN021) when purchased with a scanner

- **Maximum Zone Flexibility**
 New OmniPage Pro 9.0 identifies regions of text and graphics on a page to improve recognition and formatting. Let OmniPage Pro find them for you, and then you can add, delete, move, combine and split them any way you want.
- **Superior Integration**
 Superior Integration with MS Word. Now you can perform all your OCR functions directly from Microsoft Word - and proof your results by comparing them to the original image. You can also share a dictionary with Word, so you never have to add a word twice.
- **Colour**
 For the first time ever, OmniPage Pro lets you scan colour documents and save colour graphics into your word processor.
- **Automatic Proofreader**
 Automatically checks your OCR results within OmniPage Pro or Microsoft Word and displays the original image for comparison. Like a spell checker, it highlights suspicious words and suggests corrections.
- **Retains Original Page Layout**
 OmniPage Pro's enhanced True Page preserves your documents' original "look and feel." By maintaining your layout (columns, graphics, tables, etc.) and your text style (font, size, bold, italics, etc.), you can keep the original layout with a lot less work.
- **Tables and Spreadsheets**
 OmniPage Pro 9.0 automatically detects tables within documents and preserves them as table objects in Word and WordPerfect. And now you can save spreadsheets directly to Excel, 1-2-3 or Quattro Pro with formatting just like the original.
- **Easy, One Button OCR**
 With just one click of a button, our AutoOCR Toolbar guides you through the entire OCR process. Or simply let our OCR Wizard do it for you. Nothing could be easier!
- **Over 99% Accurate**
 OmniPage Pro 9.0 makes a quantum leap in OCR accuracy. Major improvements in our OCR technology mean you can accurately recognise a greater variety of documents, with far fewer errors:
 * Letters, articles, reports, memos
 * Very small text and number
 * Even poor-quality copies and degraded faxes...



INCLUDES

PageKeeper *

OmniPage Pro 9.0 also comes with PageKeeper Standard - the easiest way to organise and find scanned and electronic documents. If you work with scanned pages, Microsoft Word files, Web pages or photos, PageKeeper is a must!

Easy to organise and retrieve: Organise files any way you want. To retrieve, simply enter any keyword and PageKeeper will find all documents containing that word and give you thumbnails of those documents. Then click the document you want to work with.

Manage any type of document: PageKeeper organise scanned pages, Word files, photos, spreadsheets, brochures, Web pages, articles...



* box shown for display purposes only.

OmniPage 9.0 U/G Upgrade from ANY OCR software

OMN020

$209

OMN014 OmniForm 3.0 **$299**

All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

For the cost of a local call **Orderline 1300 300 003 or 02 9700 8800**

VISA

Sales Lines Open 9am 'til 6pm Monday to Friday and 10am 'til 3pm Saturday.

FIND IT CHEAPER? CALL US - WE WON'T BE BEATEN!*

MICROTEK High-Tech SCANNERS

MICROTEK ScanMaker 4



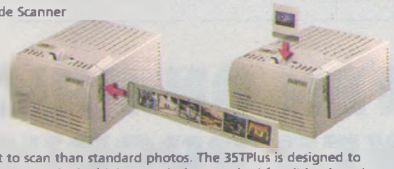
The new MICROTEK ScanMaker 4 is 2 scanners in 1. It's both a professional quality flatbed scanner and a transparency scanner using Microtek's patented E.D.I.T. technology! Special film holders are used to scan slides & transparencies directly inside the scanner, thereby eliminating the loss of optical quality caused by glass. It also offers a robust design, fast and quiet operation, 36 bit colour and a professional scanning software with ColorSync colour management, and much more!

PRO528 Microtek ScanMaker4 **$1679**

MICROTEK 35T Plus

35mm Slide Scanner

- High-speed, high-resolution Slide Scanner
- 3,900 x 1,950 DPI Optical
- 3,900 DPI Interpolated
- Scans both negatives and positives.
- Scans strips or mounted slides
- Imaging Magazine Editor's choice



35mm slides are far more difficult to scan than standard photos. The 35TPlus is designed to scan purely 35mm slides, delivering not only the higher resolution required for slides, but also by eliminating the use of mirrors and glass, it delivers much sharper images.

PRO504 Microtek 35T Plus **$999**

MICROTEK ScanMaker X6

The Microtek ScanMaker X6 offers a sharper image, much higher resolution, superior colour accuracy and much better shadow detail compared to entry level scanners. The benefits are clearly apparent when scanning line art (e.g. logos or line drawings), when you require enlargement of your original, when scanning transparencies or difficult colour photos. A better scanner also means you don't waste your time correcting every scan.

To make sure the X6 offers unbeatable value, an exceptional collection of quality software is offered. This includes Windows software for image editing, OCR (text recognition), document management, a program to create your own digital photo albums, a utility to SCAN to Print/Fax, a large library of backgrounds and stock photography, and great software to automatically blend your pictures with calendars, greeting cards, etc...

For Windows users, a genuine Adaptec 1505AE SCSI card is supplied which lets you daisy chain other external SCSI devices (e.g. SCSI Zip drive, tape drive, CD writer, slide scanner).



Parrallel Version Now Available

- Higher resolution than HP 6100CI
- 36 bit colour input and processing (1 pass)
- 1, 8, 12, 24 or 36 bit output
- 4 times the definition of entry level scanners
- 1200 x 600 DPI Optical
- 9,600 DPI Interpolated
- 720,000 dot measured per square inch!
- A4 Size
- FlexScan lid
- Zero Reflection Design
- Advanced Image Enhancer
- Great bundled software
- Includes Adaptec 1505AE SCSI
- Tri-linear CCD sensor array
- Dynamic range: 3.2
- 12 months warranty

PRO526 Microtek ScanMaker X6 Parallel **$499**

PRO523 Microtek ScanMaker X6 SCSI **$499**

UMAX Flatbed Scanner only $149

UMAX Astra 610 Series Scanner

The plug 'n' play flatbed scanner that adds colour and life to your documents!

Add the colour and vitality of images to everything you do on your computer with the Astra 610 series scanners from UMAX. After plugging the scanner in and installing the software, simply turn it on and you're ready to go - it's that easy! Designed especially with the home or small office user in mind, the Astra 610P or 610S are sleek, compact, affordable scanners that fit right there on your desktop.

The diverse range of user friendly software bundled with the Astra 610 makes light work of any task. Whether you are scanning your favourite photo to e-mail to friends or using OCR to scan text for an assignment, it can all be done at the push of a button with the easy to use UMAX Astra 610 series!



Features
- 600x300 dpi optical resolution for crisp, vibrant images
- 4800 dpi max. resolution for smooth lineart and image magnification
- 30 bit colour depth captures over 1 billion colours
- 216mm x 297 scan area (A4)
- Single pass colour CCD for fast productivity
- Your choice of SCSI or Parallel port (PC only) interface

Includes Free Software
- Adobe PhotoDeluxe
- UMAX VistaScan
- Caere Omnipage OCR
- Presto! PhotoAlbum (Win only)
- Presto! PageManager

UMA011 UMAX Astra 610P (Parallel interface). **$149**

UMA013 UMAX Astra 610S (SCSI interface)..... **$279**

UMAX Astra 1220 Series Scanner

The ideal scanning solution for the SOHO or Corporate user!

If you're looking for a scanner with speed, quality and reliability, look no further than the Astra 1220 Series. Incorporating UMAX's exclusive Bit Enhancement Technology (BET™), scanned images are given greater clarity, sharpness and colour depth, guaranteeing a better quality image every time! Designed specifically for the Corporate or SOHO user who demand more from their scanner, The Astra 1220 Series scanner is the ideal Corporate colour scanning solution!



Features
- 1200x600 dpi optical resolution
- 9600 dpi max. resolution
- 36 bit colour depth (with BET™)
- 216mm x 297 scan area (A4)
- Your choice of SCSI, Parallel (PC) or USB connectivity.
- Optional Transparency adaptor

Software
- Adobe PhotoDeluxe
- UMAX VistaScan
- Caere Omnipage OCR
- Presto! PhotoAlbum (Win only)
- Presto! PageManager

UMA014 UMAX Astra 1220P (Parallel) **$269**

UMA015 UMAX Astra 1220S (SCSI) **$489**

UMA012 UMAX Astra 1220U (USB) **$329**



TextBridge Pro 98

SPECIAL OFFER!

The award winning Textbridge Pro 98 is available for a limited period for just 49!! Combining a highly accurate OCR engine with a simple user interface and one click operation, Textbridge Pro 98 has taken scanning software to a new level.

Faxes, photocopies or articles can be converted into fully editable documents within seconds - at higher levels of accuracy than ever before. Eliminate the need for retyping documents now. Use Textbridge Pro 98!

XER007

$49

Limited Stocks

Luke



All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

Microsoft

INTERNATIONAL SOFTWARE WAREHOUSE Pty. Ltd.

EVERYTHING FOR YOUR PC - DELIVERED NATIONWIDE!

ATTENTION!

WE WILL NOT BE BEATEN ON MOLP PRICING

Microsoft Open Licensing is THE most cost effective way for businesses to purchase Microsoft software.

Open Licensing will:

SAVE YOU MONEY. The scheme is designed to give large discounts.

GIVE YOU FULL SUPPORT Receive full technical support from the people who made the software!

KEEP YOU LEGAL. Enjoy the peace of mind knowing you are free from legal action on illegal use of software.

And here at International Software Warehouse we have made a commitment to ensure that nobody will beat us on MOLP pricing. Call one of our MOLP trained sales team today. and find out how much you can save.



MS Windows NT Workstation 4.0



Powerful Performance and Reliability

Key Features:

- ease of use
- secure, easy access to the internet and Corporate intranets
- improved network integration
- improved management features
- mobile computing
- multimedia and graphics improvements
- application programming interfaces and additional features

MSS048 MS Windows NT Workstation 4.0 U/G... $225

MIC464 MS Windows NT Workstation 4.0 $469

MS Windows NT Server 4.0



Key Features:

- lower operating costs
- leverage your existing systems
- globally manage users and security from a central location
- reduce communication costs by using a VPN to dial in via the Internet
- create professional-quality Web sites easily
- build and deploy powerful intranet applications quickly
- manage all Web sites across an entire network from a single location

MIC583 MS Windows NT Server 4.0 + 5 Client UG $499

MIC463 MS Windows NT Server 4.0 + 5 Client..... $1129

MIC493 MS Windows NT Server 4.0 + 10 Client UG $679

MIC495 MS Windows NT Server 4.0 + 10 Client..... $1799

Microsoft Windows 98



Microsoft Windows 98 is packed with new features and greater performance

Enhance your productivity with full Internet integration, optimal performance and support for the latest entertainment and accessory options.

MIC770 Microsoft Windows 98 U/G.... $139

Microsoft Plus! 98



The ideal companion for Windows 98

Microsoft Plus! 98 is the ideal companion for Windows 98, with enhancements for work and play. It includes powerful system utilities, new themes and cool games.

Powerful Systems Utility!

MIC761 Microsoft Plus! 98 $55

WE WON'T BE BEATEN ON PRICE FOR MICROSOFT BOXED PRODUCTS.

MS BackOffice Small Business Server



Microsoft BackOffice Small Business makes it easy to manageand grow your business and now with MicroSoft Office 97 Pro You Have the Complete Business Solution.

File, print, and application services;
Proven product, secure, reliable, comprehensive platform for connecting to the Internet . MS SQL Server provides a powerful, secure relational database for running business apps.

Communicate in new, more efficient ways;
Communicate across the world build an online community with electronic mail, discussion groups etc. Centrally manage sending and receiving faxes. Locate a Service Provider & get on the Internet fast! MS Proxy Server - fast, secure access to the Internet from individual desktop PCs.

Check out our website at www.iswh.com.au for full information.

Easy to set up, manage, and grow
Installing MS Small Business Server is truly easy. Automated tools. Walk you through the setup step by step.

MSS127 BackOffice SBS 4.0 + Office 97 Pro 5 Users starter kit..... $4599

MSS128 BackOffice SBS 4.0 + Office 97 Pro Additional 5 Client Licence..... $2749

MSS070 BackOffice SBS 4.0 English Intl C/P Upg. CD 5 Client..... $1489

MSS072 BackOffice SBS 4.0 English Intl CD 5 Client $2239

MSS071 BackOffice SBS 4.0 English Intl CD 25 Client..... $3799

Microsoft BackOffice Version 4.0



The Microsoft BackOffice 4.0 includes six integrated "best-of-breed" components that work together to help run your business.

Check out our website at www.iswh.com.au for full information.

MSS130 MS BackOffice Server 4.0..... $3749

MSS131 MS BackOffice Server 4.0 Comp U/G $3169

MSS132 MS BackOffice Server 4.0 Version U/G..... $1349



Microsoft Windows NT Server 4.0
A multipurpose network operating system that is the most powerful, reliable and open platform to build, deploy and manage file and print sharing, client-server and Internet applications for your networks. Windows NT 4.0 includes Internet information Server - so you have all you need to set up a web server.



Microsoft SQL Server 6.5
SQL Server 6.5 represents the state-of-the-art in relational database management technology, with enhancements including increased performance, heterogeneous replication to ODBC subscribers, distributed transaction control, and Internet connectivity.



Microsoft SNA Server 3.0
Makes it easy to connect PCs to IBM mainframes and Asi400 systems. Graphical administration tools help you configure and manage that connectivity, giving users convenient, reliable access to host systems, and administrators easier management of new users and devices.



Microsoft Systems management Server 1.2
The most comprehensive solution for managing an entire enterprise-wide system or a 20-node network; an easy way to manage your system that also helps you control administrative costs.



Microsoft Exchange Server 4.0
A highly scalable messaging solution integrating e-mail, group scheduling, electronic forms and GroupWare applications.



Proxy Server 1.0
The Microsoft Proxy Server is the easiest and most secure way to bring Internet access to every desktop in an organisation.

All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

For the cost of a local call Orderline 1300 300 003 or 02 9700 8800

VISA MasterCard BPAY

Sales Lines Open 9am 'til 6pm Monday to Friday and 10am 'til 3pm Saturday.

INTERNATIONAL

SOFTWARE WAREHOUSE Pty. Ltd.

Microsoft

FIND IT CHEAPER? CALL US - WE WON'T BE BEATEN!*

*See page 46 for Price Pledge

Microsoft Visual Basic 6.0

Build powerful applications fast!

FROM $169

Microsoft Visual Basic 6.0 is the most productive tool for quickly creating fast business solutions.

With its Rapid Application Development (RAD) environment, developers can quickly create and deploy super-fast client/server applications - plus easily develop Web applications using familiar Visual Basic programming techniques.

Visual Basic is the leader in RAD with its visual user interface (UI) designer providing developers with intuitive drag-and-drop UI creation. No tool is more RAD, easier to design GUIs with, or has more commercially available third-party components, controls, and tools associated with it. Visual Basic has many pre-built components and fast creation of custom components that can be either client or server based.

With IntelliSense technology, you don't need to memorise commands or language syntax. Just type a portion of the word, and Visual Basic does the rest.



MSS057 Vis Basic Std 6.0 Learning $169
MSS058 Vis Basic Pro 6.0 $839
MSS059 Vis Basic Pro 6.0 U/G $429
MSS060 Vis Basic Ent 6.0 $2049
MSS061 Vis Basic Ent 6.0 U/G $1199

SQLServer 7.0

SQL Server 7.0 is the leading Windows database bringing business advantage and improved decision-making to all levels of the organisation through the power of data warehousing, scalable business solutions and interoperability with Microsoft Office.



Key Features

- Enabling business advantage through Scalable Business Solutions
- Bringing faster and better decision making through Data Warehousing
- Empowering employees via Integration with Office and Windows family
- Scalable from small laptop databases to enterprise databases using the same code base, offering 100% code compatibility.
- Multiphase Query Optimizer finds the optimum plan for queries to improve performance of complex queries.
- Web Assistant, making publishing Web data easier.
- Auto Statistics extract statistics using fast sampling, enabling the usage of the latest information and increasing query efficiency.
- Active backup provides high performance online backup.

MSS195 SQL Server 7.0 $2199

Visual C++ 6.0

FROM $169

Visual C++ 6.0 is the most productive C++ tool for optimised high-performance Windows and Internet development.

Nearly all contemporary world-class software, including the leading Web browsers, Internet servers, databases, and office productivity suites are built with the Microsoft Visual C++ development system.

It is also a tool of choice for creating scalable, multi-tier corporate applications where performance and reliability are critical.



Call for pricing on Learning Edition

Key Features

- For faster turnaround, make changes during your debugging session and continue on without rebuilding
- Speed development time and write less code with on-the-fly syntax and programming assistance within the editor
- Add a variable or method to a class, and its reflected immediately
- Realise up to a 30 percent faster compile time for quicker turnaround.

MSS062 Visual C++ Std 6.0 $169
MSS063 Visual C++ Pro 6.0 $835
MSS064 Visual C++ Pro 6.0 U/G $429

Microsoft Visual Studio 6.0

Product/Components	Description	Pro.	Ent.
Microsoft Visual Basic 6.0, Visual C++, Visual FoxPro 6.0, Visual InterDev 6.0, Visual J++ 6.0, MSDN Library Special Edition	The complete suite of Microsoft Visual Tools.	•	•
Enterprise Visual Database Tools	Visually design databases and views, and create and test stored procedures for Microsoft SQLServer 6.5+ and Oracle 7.0+ databases.		•
Microsoft BackOffice 4.5 Developer Edition (for Windows NT only)	Build Windows NT-based solution that can be accessed from Windows-based or Web-based clients and integrated in enterprise environment with selected server technologies form the Microsoft BackOffice family. The Deveopment License for Microsoft BackOffice Server 4.5 includes Microsoft SQL Server, Microsoft Exchange, Microsoft SNA Server, Microsoft Site Server, Microsoft Systems Management Server and Windows NT Server.		•
Team Support	Microsoft Visual SourceSafe version control system version 6.0, Visual Component Manager, and Microsoft Repository.		•
Application Design Tools	Design multi-tier applications with Visual Modeler.		•

Everything you need to quickly build Web- and Windows-based solutions for your developing world.

Microsoft Visual Studio 6.0 provides you with a complete tools suite to build and manage distributed solutions. Take advantage of RAD features to increase your productivity, integrate data seamlessly into your applications, and organize team-based development projects.



MSS053 Visual Studio Pro 6.0 $1699
MSS054 Visual Studio Pro 6.0 U/G $859
MSS055 Visual Studio Ent 6.0 $2579
MSS056 Visual Studio Ent 6.0 U/G $1699

ATTENTION!

WE WILL NOT BE BEATEN ON MOLP PRICING

Microsoft Open Licensing is THE most cost effective way for businesses to purchase Microsoft software.

Open Licensing will:

SAVE YOU MONEY. The scheme is designed to give large discounts.

GIVE YOU FULL SUPPORT. Receive full technical support from the people who made the software!

KEEP YOU LEGAL. Enjoy the peace of mind knowing you are free from legal action on illegal use of software.

And here at International Software Warehouse we have made a commitment to ensure that nobody will beat us on MOLP pricing. Call one of our MOLP trained sales team today, and find out how much you can save.

Irina



All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

Orderline 1300 300 003 or 02 9700 8800 Order by fax 02 9700 8801
Enquiries 02 9700 8800 Internet site www.iswh.com.au
13 Bradford Estate
10 Bradford St
Alexandria
Sydney 2015

INTERNATIONAL SOFTWARE WAREHOUSE Pty. Ltd.

EVERYTHING FOR YOUR PC - DELIVERED NATIONWIDE!



KENS KORNER

This month I have heaps of fantastic bargains waiting to be snapped up. Some are previous versions, others have damaged packaging, but ALL carry full guarantees and warranties. Remember, there are limited stocks so call quickly.

AUS118 Ramgate **$15**

MAG008 Magtron 15" Monitor (5 only) **$249**

KEN081 Rapid Remote v1.1 (10 only) **$19**

KIS033 Rescue Me Wing95 **$10**

MCA029 McAfee Web Crypto v1 **$10**

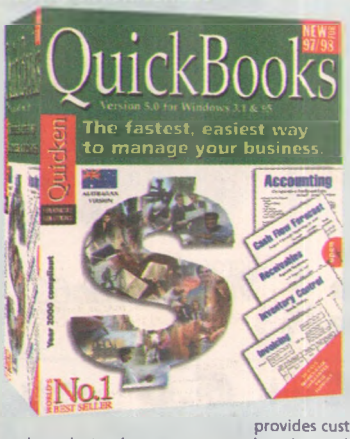
There are many more that I can't fit in here. For a full listing, check out my section on our website at www.iswh.com.au

See you next month!

Ken

QuickBooks by Quicken

www.reckon.com.au



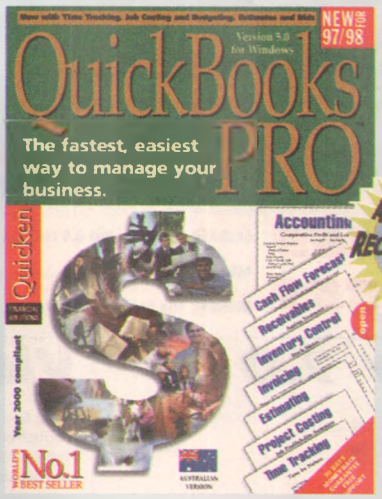
The latest version of Quickbooks - Quickbooks Version 5.0, and Quickbooks Pro with Payroll - advance the category of small business accounting software by providing an affordable, powerful off-the-shelf product that is easy to set up and customise.

Informative graphs and reports: Quickbooks provides customisable reports and graphs to give you an up-to-the-minute picture of your finances.

Customised invoices and statements: Quickbooks' new layout designer gives you even more flexibiliy to design your invoices, cash forms, statements, credit memos and purchase orders.

Navigator: The Quickbooks Navigator is organised the way you think about your business and all the activities and reports you need are right there.

Contact Management features: Quickbooks' contact manager enables you to track all interactions with your customer suppliers and employees. Customer's can be effortlessly mail-merged with a word processing program.



QuickBooks Pro

QuickBooks Pro includes everything in QuickBooks, plus time tracking, estimating and job costing.

Quickbooks Pro is designed for small businesses that are project or time-based such as contractors or consultants . Features include:

Easy TrackTime: QuickBooks Pro enables you to enter employees hours on weekly forms or single activity forms. Time information flows automaticaly to invoices and cheques.

Create professional estimates fast: After a customer name or service, QuickBooks Pro fills in the rest, along with the markups and discounts. Later click a button and Quickbooks Pro creates an invoice from the estimate.

Keep track of time: QuickBooks Pro's new timer program allows you to easily record time spent on projects. Multiple people in an office can use the timer on their PC's and export data into QuickBooks Pro.

Excellent Value

QUI032	QuickBooks V5.0	**$175**
QUI033	QuickBooks Pro V5.0	**$309**
QUI039	QuickBooks Pro Technology Upgrade	**$139**
QUI040	QuickBooks V5.0 Technology Upgrade	**$95**
QUI043	Quick Payroll Pro Upgrade	**$139**

Payroll Headaches? You Need Logisoft!

It's time to make payday less stressful. With the Logisoft Payroll Series, you can process pay easier and faster, saving you time, money and sanity!



Since 1986, the ATO approved Logisoft Payroll Series has been developed to ensure compliance with all current Superannuation Guarantee and many other Award, Industrial and Legislative requirements. The Logisoft Payroll Series can back up it's claims: It is now being used to pay over 1 MILLION Australian employees EVERY WEEK! The customisable payroll series fully integrates with MYOB, QuickBooks, Pastel, Peachtree and many others. And it covers UNLIMITED employees! If you need more information, call our sales team on 1300 300 003.

LGS001	PayBook (Single Company)	**$295**
LGS002	PayPacket (Up to 3 Companies)	**$595**
LGS003	PayPacket Professional (Unlimited Companies)	**$1495**

No accounting knowledge? No problem!

Get EZCal '98 - the easiest business software for small businesses available in the market today!

EZCal '98 is designed so that it can be used within 15 to 20 minutes with no training! Online coach assists you in completing any task. Focus on running your business rather than learning how to use the software. Increase performance and efficiency, while reducing costs! Finally, a complete business software solution for small businesses!



- Quotes
- Inventory/Stock Control
- Debtors
- General Ledger
- Invoicing
- Creditors
- Cashbook
- and much, much more!!!

EZCal '98 maintains your General Ledger, creates journal entries and even provides you with the best financial statements with just a click of the mouse. Choose from over 120 of the most common business reports and graphs: Accounts Payable, Accounts Receivable, Sales, Purchases, Financial Standing and more... The professional appearance, customisable headings and instant representation of your business standing make EZCal '98 the best available for small and home offices!

For more information, contact our sales team on 1300 300 003.

SPN001 EZCal '98 Total Office **$279**

All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

For the cost of a local call Orderline 1300 300 003 or 02 9700 8800

Sales Lines Open 9am 'til 6pm Monday to Friday and 10am 'til 3pm Saturday.

FIND IT CHEAPER? CALL US - WE WON'T BE BEATEN!*

MYOB® is Australia's favourite

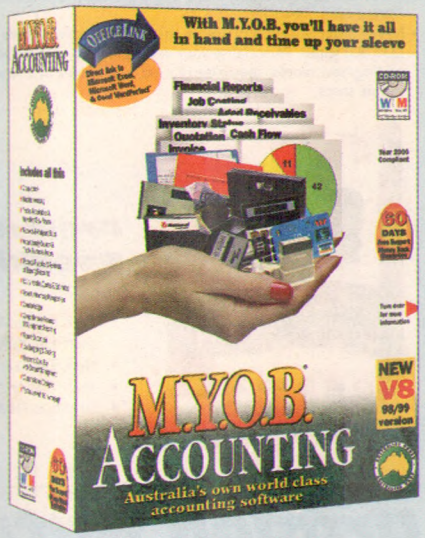
- used by over 140,000 Australian businesses
- recommended by 2 out of 3 Australian Accountants
- Year 2000 compliant - see www.myob.com.au

AUSTRALIAN OWNED

AUSTRALIAN MADE

MYOB Accounting V8
MYOB Accounting With Payroll V8

MYOB Accounting Version 8 builds on all of MYOB's award-winning features and adds • MYOB OfficeLink direct link to MS Word and MS Excel • User-definable aging – choose 7-14-21 days or whatever you want. Plus correct monthly aging. • electronic payments via your bank & 27 other enhancements. Features include; General Ledger, Chequebook, Sales & Receivables, Purchases & Payables and Full Inventory. **MYOB Accounting with Payroll** includes all of these features plus a fully integrated Payroll.



MYO030 MYOB Accounting V8..... **$325**

MYO031 MYOB Accounting V8 with payroll **$475**

Now M.Y.O.B. can put $20,000 straight on your bottom line.

You can WIN $20,000 when you buy any M.Y.O.B. or Digi-Till product

Australia's own world class accounting software. M.Y.O.B.

Contest entries close 19/5/99

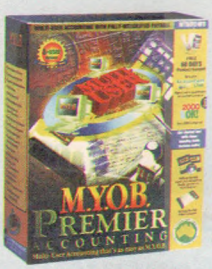
MYOB FirstAccounts



Your ideal first accounting system, MYOB FirstAccounts makes it easy for you to track income and expenditure, reconcile bank statements, create and print invoices, statements, and purchase orders, track who owes you money and who you owe money to. Produce profit & loss and other key reports with a mouse click. No business is too small for FirstAccounts. Outgrown Quicken, MS-Money? You can easily move up to MYOB FirstAccounts.

MYO025 MYOB FirstAccounts **$165**

MYOB Premier



Multi-user accounting that's as easy as MYOB **Multi-user**

All the accounting features of MYOB Accounting with Payroll, plus additional features tuned for use across a network by multiple users. MYOB Premier brings the power, flexibility and award-winning ease-of-use of MYOB to multiple concurrent users. Includes access for 3 concurrent users – additional licences easily added.

MYO023 MYOB Premier **$875**



MYOB ASSET MANAGER

Puts you in control of your fixed assets. Do you know how much money you have invested in fixed assets? Do you know where they are? Have they "disappeared"? Can you quickly provide a list of assets to the insurance company? Are you keeping depreciation schedules and asset cost information the ATO requires? If not, you need MYOB Asset Manager.

MYO003.... **$249**

Y2K compliant



MYOB POWERPAY

Get powerful payroll management with MYOB Powerpay. Designed for companies with more than 20 employees, Powerpay is quick and easy to set up. Using a prompting system, it guides you through setting up the details for each employee. Powerpay can process payroll in minutes. It even comes with 60 days free introductory support.

MYO028.... **$459**



All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

INTERNATIONAL SOFTWARE WAREHOUSE Pty. Ltd.

EVERYTHING FOR YOUR PC - DELIVERED NATIONWIDE!

Category Index

Accounts 12,13
Business 16,17,18
CAD 24,25
Communication 26,27,28
Digital Cameras....43
Graphics Cards 35,40,41,42
Graphics/DTP Software 18-22
Microsoft 3,10,11
Modems 46,47
Networking....44,45
Monitors.....40
Notebooks 4
OCR 8
PCs 5
Printers 6,7
Reference/ Training 23
Scanners 8,9
Storage 36-39
Tape Backup.....38
UPS 44
Utilities 29-32
Video Capture 42
Voice Recognition 14,15
Y2K 33,34

Dragon Naturally Speaking

Ground breaking technology, award winning performance

Dragon Naturally Speaking is the world's first and foremost software product that recognises and creates text from normal continuous speech. Dragon Naturally Speaking is acclaimed in competitive reviews for its accuracy, performance and ease of use. Just talk to your PC naturally, at a conversational pace. Dictate entire paragraphs at a time. Write email messages, create reports, draft letters, and edit proposals just by speaking.



DRG004
$179

Standard - Features:

- Immediate Recognition - Your words appear immediately on your screen and in your document.
- Integration with Microsoft Word 97 and Corel WordPerfect 8 - with Dragon Systems editing technology create, edit anytime, and format any word or phrase easily using intuitive commands.
- New, Larger Vocabulary - more than 35,000 active words (230,000 total). Personalise your vocabulary by automatically adding new words, specialised terms, and names in a few simple steps.
- Hands-Free Editing - Move your mouse pointer with pinpoint accuracy, click buttons, 'press' any key on the keyboard, and activate menus by simple voice commands.
- Text Shorthands - Quickly insert frequently used phrases and sentences just by saying a single word or phrase.
- True Continuous Speech - just speak naturally, without the need to pause between words
- Learns most speaking styles, even strong accents, and supports multiple users
- Up to 160 Words per minute
- Accuracy as high as 98%
- Includes high quality microphone



DRG003
$289

Preferred - All the features of Dragon Naturally Speaking Standard, plus:

- Even Higher Accuracy - Industry-leading BestMatch recognition technology reduces errors by 25% to achieve higher accuracy than ever before.
- New, Even Larger Vocabulary - 42,000 active words (230,000 total)
- Text-To-Speech - Listen to your own documents or other files such as e-mail read aloud to you.
- Dictation Playback - Listen to a recording of what you said before you edit, in order to keep your original intent.

Dragon Naturally Speaking Mobile



NEW PRODUCT

Only $679
DRG006



Its so easy!!



Press 'Record' button and speak into the recorder's built-in microphone.



Connect the recorder to your PC using the included cable.



Select which recordings you want transferred to the PC.



Press 'Transcribe' and your recorded speech appears as the text on your screen and in your document.

Create text anywhere.

Dragon Naturally Speaking Mobile is the complete speech recognition system for people on the move.

- Holds up to 40 mins of continuous speech on built in memory cards.
- An additional 80 mins can be stored on removable memory cards.
- Speak at up to 160 words per minute.
- File your recordings into folders for ease of use.

Don't Be Chained To Your PC. Talk To Your PC Any Time Anywhere.

All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

For the cost of a local call **Orderline 1300 300 003 or 02 9700 8800**

Sales Lines Open 9am 'til 6pm Monday to Friday and 10am 'til 3pm Saturday.

DON'T FORGET TO ASK FOR YOUR FREE GIFT

VoiceDirect Continuous Gold

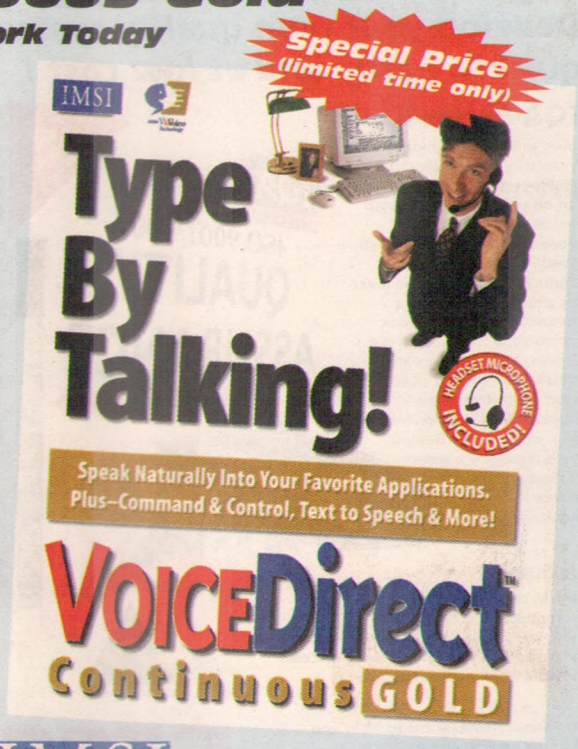
Put Your Commanding Voice to Work Today

Voice-control your computer without having to pause between words. Create documents faster than many skilled typists. You can even use your voice to control Windows and Microsoft Word! Speak to your computer like you are talking to a friend. VoiceDirect Continuous Gold delivers the reliability, accuracy, and ease-of-use you need to get the most from your time at the computer-hands down!

You...Don't...Talk...Like...A...Robot

Why dictate that way? Continuous Speech VoiceDirect products learn to interpret the way you speak naturally - not one word at a time like discreet products. And using industry-leading ViaVoice technology, VoiceDirect is as accurate as any speech recognition software you can buy!

Perfect for professionals in small business and corporate settings, writers, power users, and mobile PC users needing a powerful and complete speech recognition solution that allows for the operation of command and control functions.



Key Features:

- Fast, continuous speech recognition with no pausing between words
- Voice command and control of the Windows desktop
- Voice command and control of Microsoft Word
- Word recognition that eliminates spelling errors
- Transfer dictation directly into popular programs with a mouse click
- User Wizard for quick orientation
- Keyword shortcuts to trigger commonly used phrases, addresses, etc.
- IBM's multi-patented industry-leading technology
- Context recognition to distinguish between similar-sounding words and phrases
- Text-to-Speech feature that reads compositions and imported text aloud
- Base vocabulary of 22,000, expandable and customisable to 64,000 words
- Plus, a 260,000 word back-up dictionary
- Save feature for convenient correction options
- Includes Premium noise-cancelling microphone

System Requirements:

- Pentium 166 MHz or 150 MHz with MMX
- Windows 95, Windows 98 or Windows NT 4.0
- 32MB RAM for Windows 95 & Windows 98, 48MB RAM for Windows NT 4.0
- 125MB available hard disk space
- Creative Labs Sound Blaster 16 or 100% compatible, or Mwave audio system
- Some laptops and sound cards may require a microphone battery adapter
- CD-ROM Drive

IMSI

Stock Code:IMS142

$189

Note: VoiceDirect products support a variety of popular software including Microsoft Word 6.0, 95 and 97, PowerPoint 7.0, Excel 7.0, and Exchange; Lotus SmartSuite 97; Lotus 1-2-3; Lotus Notes 4.5; Corel Perfect Office 7; WordPerfect 7.0; and more.

VoiceDirect Continuous Express

Go ahead, Speak Naturally!

Take a hands-off approach to using your PC by speaking instead of typing. Using IBM ViaVoice technology, VoiceDirect is a professional speech recognition system that lets you speak into virtually any Windows application - just by speaking in your normal voice, up to 100 words per minute! Perfect for home users and students who want to bring state-of-the-art speech recognition technology into their computing environment.



Key Features:

- Continuous Speech Technology
- Speak Directly Into Applications
- Macros
- Error Correction
- Shortcuts
- Context Recognition
- Extensive Vocabulary and Backup Dictionary
- Command and Control in Word 95 & 97(30 Day Limited Use)
- Command and Control of the Windows desktop (30 Day Limited Use)
- Standard Microphone
- UpdateNow (30 Day Trial)

IMSI

IMS140 VoiceDirect Continuous Express **$69**

VoiceDirect Continuous

Speak Naturally, Plus, Have Text Read Back To You!

Free yourself from the tedium of typing-without sacrificing accuracy or speed. Continuous speech recognition gives you and your favourite applications the ease, accuracy, and intelligence to all but do away with your keyboard. Just point your mouse and speak naturally-without having to pause between words. Perfect for small business and home office users wanting to improve productivity with the benefits offered by speech recognition - fast computing, and freeing of the hands for other tasks.



Key Features:

- Fast, continuous speech recognition-no pausing between words
- Transfer dictation directly into popular programs with a mouse click
- User Wizard for quick orientation
- Key word shortcuts to trigger commonly used phrases, addresses, even whole pages.
- Context recognition to distinguish between similar-sounding words and phrases
- Text-to-Speech feature that reads compositions and imported text aloud
- Base vocabulary of 22,000, expandable and customisable to 64,000 words
- Plus, a 260,000 word back-up dictionary
- Save feature for convenient correction options
- Includes a premium noise-cancelling microphone

IMSI

IMS141 VoiceDirect Continuous **$99**



PAINT SHOP PRO

THE VERSATILE IMAGE DESIGN STUDIO

Paint Shop Pro 5 is a complete image creation and manipulation program that enhances the imaging power of business and home users with unrivaled ease of use, speed and affordable functionality.

To express your self with rich and arresting imagery, you need tools that offer innovative functionality and the flexibility to work in any setting without slowing you down. Whether you need to design corporate Web graphics or touch up a family photograph, Paint Shop Pro is the perfect program to express and enhance your visual creativity.

IAS009

$135

Kieran



All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

INTERNATIONAL SOFTWARE WAREHOUSE Pty. Ltd.

EVERYTHING FOR YOUR PC - DELIVERED NATIONWIDE!

Buy the TQA Quality Assurance with the TQA Quality Manager and choose either a

Umax 610P Colour Scanner

or

Iomega Internal Zip Drive.

ABSOLUTELY FREE!

Limited stocks.

TQA - ISO 9001/2 Quality Assurance

Develop your own quality system quickly, easily and at low cost !

TQA Series 5

saves you time and money with Templates and Samples of quality system documents. These can be customised using your choice of Windows word-processor (Microsoft Word 6.0, Word Perfect 6.0, Microsoft Works 3.0 and above). To make the process even easier, a comprehensive Guide Book explains the standards in plain English, and Tech Tips are provided on the use of all 3 word-processors ! New multimedia CD version includes over one hour of Training Presentations + a series of Case Studies on different industries.



FEATURES
- ✔Low price - only a fraction of consultant's fees
- ✔Covers all relevant clauses of ISO 9001/2
- ✔Works with your familiar word-processor
- ✔Work at your own pace

AUSTRALIAN MADE

CD Format (Professional licences and 3.5 Disk version also available)
TQA004 TQA v5 Single User Licence..... $379

Manage your quality system without bulging filing cabinets

TQA Quality Manager

✔**DOCUMENT & DATA CONTROL**
Master List To track important documents and data. Records display number, title, version & issue date. Links to leading Windows word processors to view documents. With network licence, documents may be distributed electronically. Also includes Copy Holders List, Revisions List & Deletions List

✔**INTERNAL QUALITY AUDITS**
Audit Schedule to plan your audit program, and identify outstanding audits. Generate Audit Reports online. Duplicate Schedule reproduces checklists and other details for future years. List Internal Auditors, their contact details, and audits



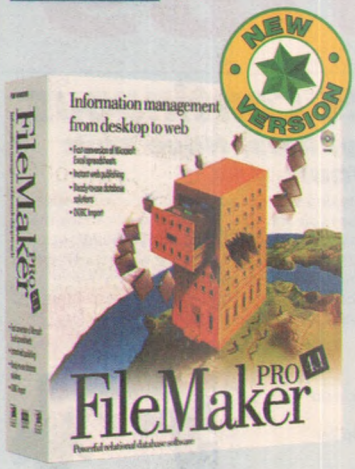
✔**NONCONFORMANCES / CORRECTIVE ACTION**
Nonconformance List displays summary and outline of all reported nonconformances. Generate Nonconformance Reports online. Various Query facilities.

✔**MANAGEMENT REVIEW**
Record Minutes of Meetings. Default agenda and facility to create custom agenda.

AUSTRALIAN MADE

CD Format
Network licence also available
TQA002 TQA Quality Manager..... $479

FileMaker Pro 4.1 - Complete Your Office Suite



For only a fraction more, Complete Your Office Suite lets you benefit from the productivity of a powerful relational database like FileMaker Pro.

FileMaker Pro 4.1 gives you powerful new relational database features, instant web publishing, fast conversion of Microsoft Excel spreadsheets and ready-to-use database solutions. FileMaker Pro is a software package that lets you work with and share information wherever you need it.

Now handles ODBC Import



Powerful relational database software

- **NEW** built-in intuitive ODBC SQL Query Dialog lets users query ODBC data sources without requiring SQL programming expertise
- Share departmental and regional information with instant web publishing - no separate web server application required.
- Capture information from - and share information with - visitors to your web site using custom web publishing.
- Take advantage of FileMaker Connection Assistant in HomePage 3 software (not included) to design eye-catching, interactive web pages.
- Access word processing functionality in any text field to customize fonts, styles, tabs, indents, and text attributes.
- Automate routine tasks easily with ScriptMaker.
- Create relational solutions to increase the power and flexibility of your databases. Even sort information from related databases.
- Share files between Windows and MacOS versions.

Features:
- Runtime version of FileMaker on the CD.
- 101 ready-to-use database solutions built in FileMaker Pro - timesheets, vehicle logbooks, business card maker, invoice maker and more.
- $19.95 Refund when you purchase and register a full version of FileMaker Pro product

FileMaker Pro 4.0 Developer Edition has received 100% Pure Java Certification from Sun Microsystems' Java software division. The Developer Edition features an application program interface allowing developers to write external functions for FileMaker Pro Databases. Enjoy the benefits of easily developing cross platform, very important for creating databases for company Internet, intranet and extranet Web sites.

FIL004 FileMaker Pro 4.1 $349
FIL005 FileMaker Pro 4.1 U/G $235
FIL003 FileMaker Pro 4.0 Developer Edition $825
CLA060 FileMaker complete Your Office Suite $19.95

All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

For the cost of a local call **Orderline 1300 300 003 or 02 9700 8800**

Sales Lines Open 9am 'til 6pm Monday to Friday and 10am 'til 3pm Saturday.

VISA MasterCard AMERICAN EXPRESS BANKCARD BPAY

FIND IT CHEAPER? CALL US - WE WON'T BE BEATEN!*

Business & Marketing Plans

The Easy Way — Save 50-90% of the time to prepare a plan!

MAUS MasterPlan is designed for people who need a winning, professional Business Plan instantly. Its simple language reinforces its user-friendliness, explaining every process. A step-by-step question and answer format enables you to construct full financials, text and graphics at the click of a button. **MAUS** MasterPlan will also easily instruct you how to analyse and develop your business.

Topics covered include Sales Analysis, Market Analysis, SWOT Analysis, Marketing Plan, Financial Plan, and much more. Australian written and tested in the field, this program has been tailored specifically to meet the needs of Australian users and is suitable for both product and service businesses in any industry. With **MAUS** MasterPlan, your Business Plans will be more effective, more impressive, and greatly improve your chance of achieving success!





Runs on Windows 3.1 & Windows 95

Product Summary

- **MAUS** MasterPlan - Level 2 (Professional): Software to help you prepare either a simple Business Plan or a more detailed Business Plan which incorporates a full Marketing Plan and analysis. Includes full financial analysis, a follow up program which doubles as a Time Management tool and a FREE Business Planning workbook. Suitable for loan applications, analysing and improving an existing business, launching new products, or starting a new business.

What the Press are Saying

"The brilliance of this system is that you're led through the entire process step by step... the results will be as good as anything a professional would have provided for you"

Your Computer Magazine

★★★★★ 6/6 Overall

PC @uthority (January 1999)

Key Benefits

- Creates Business & Marketing Plans
- Suitable for business people of all levels
- Creates full financials & graphs
- Includes a simple step-by-step tutorial

AUS501 MAUS MasterPlan for Windows – Level 2 Professional (2 in 1 Business & Marketing Planner) $169

MAUS Consultant's Pack

Establish a Business Planning Consultancy

Used by 1000's of Accountants and Consultants, the **MAUS** Consultant's Pack will give you the forms, tools and know-how to establish a successful Business Planning Consultancy overnight. Includes information on setting up your consultancy service, promoting and costing your services, impressing your clients and a step-by-step guide for every assignment. Software contains over 80 pages of forms and management question checklists, overheads for training, sample proposals, press releases, advertisements and much more!



Used by 1000's of accountants and consultants

Includes

- **MAUS** MasterPlan Professional
- Consultant's Guide to Business Planning
- Special Consultancy Software
- Questionnaires for clients
- Training Manual

AUSTRALIAN MADE

MAU003 MAUS Consultant's Pack (Inc MAUS MasterPlan Professional) $479

MAUS Job Descriptions

Write job descriptions in minutes!

MAUS Job Descriptions will help you create clear, concise job descriptions in minutes!

Simply choose from the thousands of built-in jobs and edit or even combine duties from different jobs. Next, use the simple question and answer approach to address the physical and educational requirements, work environment, qualifications and supervisory responsibilities.

MAUS Job Descriptions will then take your answers and write a comprehensive job description that's fully customised to your organisation...

...It's that fast. It's that easy!

Key Benefits

- Create job descriptions in minutes
- Over 3,500 sample job descriptions to choose from
- Hire the right people
- Improve productivity
- Protect your organisation against unfair dismissal claims

What the Press are saying:

"Job Descriptions offers 3,500 professional descriptions and Performance Review gives a list to follow when judging staff performance."

Sydney Morning Herald (18th August 1998)

"...ideally designed to be used in conjunction with job interviews, HR planning and annual staff reviews"

The Age (25th August 1998)

"...simple, affordable, revolutionary"

Instore Magazine (September 1998)

★★★★★ 6/6 Value for Money

PC @uthority (October 1998)



PC Users Best Products of 1998



MAUS Performance Review

For fast, effective employee appraisals!

Described by PC @uthority as "one of the first products any manager should load onto their PC", **MAUS** Performance Review will help you create accurate, personalised employee reviews in minutes!

Simply choose from the dozens of performance criteria such as initiative, leadership, problem solving ability, and sales skills.....to name just a few! Next, use the simple 1 - 5 grading system to rank your employees in each area.

MAUS Performance Review will then support your ratings with clear, effective text...

...It's that fast. It's that easy!

Key Benefits

- Save 50-90% of the time to write employee reviews
- Simple step-by-step approach
- Record ongoing problems and achievements
- Accurate, personalised reviews
- Clear, natural text flows

MAU006 MAUS Job Descriptions and Performance Review Save $30 $308

MAU005 MAUS Job Descriptions $169 **MAU004 MAUS Performance Review $169**

All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

Orderline 1300 300 003 or 02 9700 8800 Order by fax 02 9700 8801

Enquiries 02 9700 8800 Internet site www.iswh.com.au

13 Rue Industrial Estate
10 Bradford St
Alexandria
Sydney 2015

MasterClips 35,000

Unbeatable value for money, this two CD program contains 33,000 high quality vector images and more - for only 19.95!



- 33,000 fully scalable vector images
- 1,000 stunning photos
- 1,000 incredible True Type fonts
- 150 of the most popular sound effects
- Full library of video and animation clips

And it's all at your fingertips with MasterClips MediaPaq Browser. The browser's extensive import capabilities (up to 36 formats supported) allows you to preview, view, file, manipulate, listen to or watch any image, font, photo, video clip, sound effect or animation on electronic media with ease.

IMS016 **$19.95**



INTERNATIONAL SOFTWARE WAREHOUSE Pty. Ltd.

EVERYTHING FOR YOUR PC - DELIVERED NATIONWIDE!



CD Phone Directory

Virtually every Australian business and residential number at your fingertips!!

Over 8 million numbers across Australia

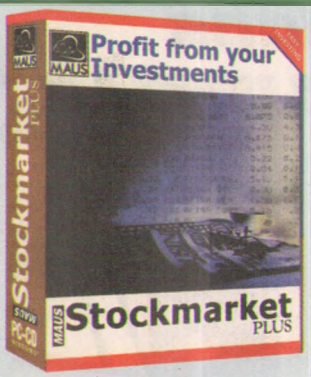
Search by name, type of business, suburb, state or postcode

Provides you with the tools to find friends, relative or all those people you wondered about... quickly and easily!

ONLY

$19

DTM011



MAUS Stockmarket Plus

MAUS Stockmarket Plus makes monitoring and managing your investments easy!

AUSTRALIAN MADE

Analyse different share returns over time, test the likely profitability of different investments, and even learn how to minimise tax.

MAUS Stockmarket Plus records and reports all trade activities in relation to your portfolio. It includes dividend payments, brokerage rates, inflation movements and your marginal tax rates. Use the charting and query system to examine the direction particular stocks are moving in and to perform queries on shares.

MAUS Stockmarket Plus also covers other important investments areas. It allows you to monitor bank account activities and even includes a home loan calculator to examine the effect of making different repayment amounts on your loan. Start enjoying the thrill of the stockmarket today with **MAUS** Stockmarket Plus!



KEY BENEFITS

- Professional investment advice in simple English
- Manage stocks, personal finances, property, etc
- Track investments in any ASX listed company
- Download stock prices for fast, accurate analysis

MAU007 MAUS Stockmarket Plus .. $169

MAUS Stockmarket Plus...."is ideal for both novice and experienced investors who require a package to keep track of their stockmarket investments.... Seldom does a software package completely outclass competitors, offering users a clearly superior product in terms of sophistication, simplicity and obvious attention to detail"

Review of core software - Personal Investment Magazine, 1997

MAUS Stockmarket Plus...."is specifically designed for monitoring a share portfolio and has the added advantage of providing analytical tools as well as keeping the records you need"

Review of core software - Editor of Money Section (SMH 17/9/97)



MAUS Debt Collector

The complete debt collection system

MAUS Debt Collector is a complete debt collection system which automatically mail merges reminder and demand letters, reminds you of phone calls and action to take, and prompts you step-by-step through the entire debt collection process. To monitor your success, this revolutionary new product includes a unique graphing and reporting feature to quickly assess your current debtor position.

MAU009 MAUS Debt Collector..... $189

KEY BENEFITS

- Reduce bad debts
- Cut collection time and costs
- Automatically sends 30, 60 and 90 day reminder letters
- Stand alone contact manager stores all debtor details
- Includes professional letters, legal documents & advice

AUSTRALIAN MADE

COREL®

CorelDRAW Select Edition



Unleash your imagination with CorelDRAW Select Edition! This exceptional graphics suite gives you the tools you need for breathtaking results. Take advantage of CorelDRAW 7 and Corel PHOTO-PAINT 7 for graphic design, photo editing, special effects, illustration and page layout. Plus, a host of utilities makes the design process much more intuitive. CorelDRAW Select Edition-a powerful graphics solution for everyone!

Features

- Get help when you need it with CorelTUTOR and context-sensitive Hints
- Work intuitively with a Property Bar that changes to suit the task at hand
- Access commonly used tools quickly with the fully customisable, streamlined user interface
- Take advantage of enhanced special effects, including bevelled extrusion, accelerated blending and colour adjustment of vector illustrations
- Publish to the Web easily with Internet graphics support, including Web browser colour palettes, image map creation tools, HTML, Corel Barista, animated and transparent GIF and Progressive JPEG
- Customise bitmaps with comprehensive effects and support for industry-standard bitmap plug-ins
- Click and drag to apply transparencies, fountain fills and blends to objects
- And many more!

Core Applications
- CorelDRAW 7
- Corel PHOTO-PAINT 7

Supporting Utilities
- Kodak Digital Science
- Colour Management System
- Corel OCR-TRACE
- CorelSCAN
- Corel MULTIMEDIA MANAGER

Plus ...
- 50 clipart images
- 50 TrueType and Type 1 fonts
- Spellchecker
- Thesaurus

COR542

$85

CorelDRAW 8

Exceed the boundaries of traditional design with CorelDRAW 8. Created for the professional illustrator, graphic artist and desktop publisher CorelDRAW 8 leaps ahead offering sophisticated features and tools required by professionals.

Technology Upgrade Guarantee*

CorelDRAW 8 includes:
- CorelDRAW 8
- Corel PHOTO-PAINT 8
- CorelDREAM 3D 8
- Corel OCR-TRACE 8
- Corel TEXTURE
- Corel SCRIPT Editor and Corel SCRIPT Dialog Editor
- CorelSCAN
- Corel CAPTURE 8
- Bitstream Font Navigator 3.0
- Corel Versions



*Applies only to CorelDRAW 8, Corel Photo-Paint 8 and WordPerfect Suite 8. Conditions apply, offer available for limited time only. Call for full details.

COR268 CorelDRAW 8 U/G $435

COR267 CorelDRAW 8 EXCEPTIONAL pricing AVAILABLE $815

All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

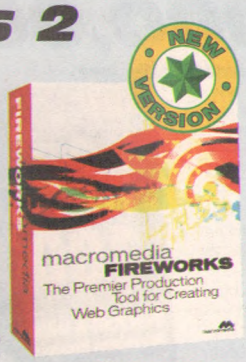
For the cost of a local call **Orderline 1300 300 003 or 02 9700 8800**

Sales Lines Open 9am 'til 6pm Monday to Friday and 10am 'til 3pm Saturday.

VISA MasterCard AMERICAN EXPRESS BANKCARD BPAY

Fireworks 2

Fireworks is the first graphics production tool to overcome the specific challenges facing Web graphic designers and producers. With just one application, you can now design, optimise, and integrate fully editable Web graphics, animations, and comps. And, because Fireworks exports clean, compact HTML code, you can use it in conjunction with your favorite HTML editor to create dynamic Web sites.



Product may vary from illustration shown.

MAC058 Fireworks 2 $499

Dream Team

Superbly Integrated Web Software

A premier production tool for Web Site designers has finally arrived! By bundling together three of their prestige Web-software packages, Macromedia are providing serious graphic and web designers the opportunity to work seamlessly through the graphic and production processes of web site creation - with HUGE savings to add.

- Included in Macromedia Dream Team:
 - *Macromedia Dreamweaver*
 - *Macromedia Fireworks*
 - *Macromedia Flash3*



Huge Savings!

MAC090 Macromedia Dream Team $949

macromedia

Dreamweaver 2

Dreamweaver 2 is the solution for professional Web site design and production. It is the only tool to offer Roundtrip HTML between visual and source editing for fast creation of great looking, cross browser Web sites. Dreamweaver 2 takes productivity to a higher level with advanced table editing, deluxe site management tools, Dream Templates, and extensibility beyond your wildest dreams. Dreamweaver smoothly integrates with the dynamic publishing and e-commerce solutions you use. It offers unparalleled support for third-party tags, including ASP, Apache, BroadVision, Cold Fusion, iCat, Tango, and custom applications.



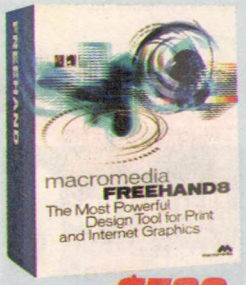
MAC114 Dreamweaver 2 $499

Freehand 8

The Most Powerful Design Tool for Print and Internet Graphics. Take your design further! FreeHand 8 makes it easy to produce and publish high-quality graphics, illustrations, layouts, and animations.

Features:

- Transparency, Magnify, Invert, Lighten & Darken Lens fills.
- Save time with Find & Replace Graphics.
- Instantly create special effects for print and the Web.
- Lay out print projects, storyboards, or cel animations using the multipage environment.
- Extensive customisation options and seamless integration with other design programmes.
- Modify shapes interactively with push-and-pull editing tools.
- Includes 10,000 updated pieces of clip art, 500 fonts, and templates.



MAC055 Freehand 8 $789

Kai's Power Tools 5

Kai's Power Tools is the premiere collection of plug-in software tools for Adobe Photoshop and compatible host applications such as MeteCreations' Painter 5.5. You have seen KPT everywhere, whether you realize it or not, on thousands of Web pages, on TV and on countless CD and book covers. In the arsenal of any cutting edge designer, you will find KPT.



MetaCreations
The Visual Computing Software Company

Unleash your Creativity

If you're a...

Designer or Illustrator, use KPT 5 to easily develop new looks, and to spark creative ideas for any project you can imagine. KPT 5's precise controls, real-time previews, and extensive presets also enhance your productivity.

Web Author, use KPT 5 to create compelling and easily reproducible Web graphics such as fantastic buttons with refracting glass edges, and amazing text effects with beveled metallic surfaces.

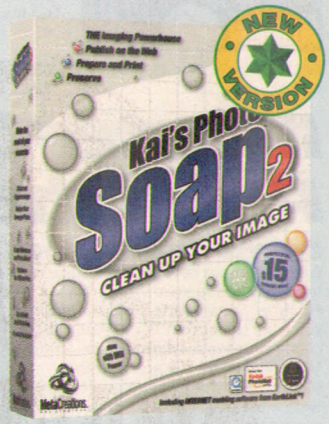
Artist, use KPT 5 to explore fantastic textures, vast fractal vistas, radical image-altering algorithms, and to complement Painter 5.5's natural media brushes. Discover original, artistic possibilities beyond your imagination.

Photographer, use KPT 5 to apply corrective and creative effects to digital photos. Add motion blurs, twirls, and traditional camera effects for production-oriented and artistic results.

MET027 Kai's Power Tools 5..... $329

Kai's PhotoSoap 2

Kai's Photo Soap 2 is the revolutionary new program that gives you all the power of professional retouching in a sleek, intuitive package that anyone can use. With a simple, fun interface that encourages exploration, Soap 2 makes it all fast and easy for everyone in the family. Even your kids can use Soap!



Tons of uses, day in and day out

Newlyweds - repair priceless photos by correcting overexposed and underexposed shots.

Real-estate brokers - clean up houses or make unsightly lawn furniture disappear.

Business professionals - eliminate under-eye circles for executive shots.

Teens - wipe out acne at a stroke.

Novice photographers - lighten sunsets, brighten basement photos and wipe out red eye and glare from flash photos.

Families - restore cracked and yellowed heirloom photos.

MetaCreations
The Visual Computing Software Company

And now exporting your Soap creations to the web couldn't be easier. Soap 2 comes with everything needed to publish your pages on the Web!

The power of organisation, too

No more dusty shoe boxes! To help you keep track of your pictures, Soap 2 sorts, categorises, and stores them in convenient digital albums for easy reference. All your digital photos are always at your fingertips, so you'll never misplace another shot.

Get Kai's Photo Soap, and brighten up those faded memories! With Soap, you'll never look at old photographs quite the same way again.

MET028 Kai's PhotoSoaps..... $89

Corel Gallery Magic 1,000,000



One Million is an easy-to-use, collection of clipart images, photos, fonts, sounds, and web images at a great price.

Add excitement to any project with Corel GALLERY Magic 1,000,000. Find images with the new browser/search engine and alter them with powerful photo-editing tools. With over one million images* to choose from, this collection is ideal for Web pages, newsletters, flyers and more!

COR541 $169

Justin



All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

INTERNATIONAL SOFTWARE WAREHOUSE Pty. Ltd.

EVERYTHING FOR YOUR PC - DELIVERED NATIONWIDE!

SO WHO ARE UMAX?

Umax are the most popular scanners in the USA, and world leaders in imaging and computer technologies. And they are now available to PC users in Australia. Umax provide a complete range of scanners, from the price leading 610p, right through to high end professional flatbed solutions. International Software Warehouse can tailor a scanner to suit your needs, so call 1 300 300 003 with your requirements. Umax also supply high quality monitors at an affordable price:

Maxvision B5

15 inch FST, 0.28mm dot pitch, Non glare, 1280 x 1024 @ 70Hz max NI



UMA016 $349

Maxvision B7

17 inch FST, 0.27mm dot pitch, Non glare, 1280 x 1024 @ 70Hz Max NI

UMA017 $689



Maxvision B7 Plus

17 inch FST, 0.25mm dot pitch, Non glare dark glass, 1600 x 1200 @ 87Hz Max NI, Standby power switch

UMA018 $1349

MasterClips 1,000,001

The World's finest and largest collection of top quality clip art.

Special Price (limited time only)

MasterClips includes thousands of exclusive clips and images you won't find anywhere else. Choose from an exciting collection of Web Art images and dazzling animations for the web, a spectacular array of photos and photo objects that will enhance any and every brochure, document or presentation you wish to create. Included in MasterClips 1,000,001 is a free subscription to the Web Site 'Art Today' where you can download images directly to your desktop.

Features:

1. The Powerful Browser – Stop shuffling CD's! Search and view thumbnail images of the entire CD collection of over 500,000 images from two navigation CDs. You supply the keywords, the browser pin-points the perfect image fast. Or access over 500,000 other images online.

2. The Colour Catalogue – Over 1,000 pages of colour pictures are intelligently arranged for speedy reference, When you see what you like, the sampler makes accessing the perfect image a snap.

3. Custom Clip-Art – Easily modify your favourite images with the MasterClips Clip Art Editor. Add text, re-size, even change the colours of any vector art with this powerful application.

4. Maximum Image Quality – Tired of resized and printed images that lose their appeal? Vector art is versatile, skewed, edited and printed! Your documents never looked better.

5. 165,000 Vector Images – Get the highest quality, editable WMF-clip art covering the widest range of subjects imaginable.

6. 32,800 Fine Art Images – Add style to any publication with unique classic illustration and fine art of exceptional quality.

7. 69,500 Classic Images – Take advantage of an unbelievable selection of classic art, including images from the world-famous Dove collection.



IMS151 **$149**

Special Price (limited time only)



MasterClips 500,000+

Choose form over half-a-million of the world's finest vector art, classic clip art, MasterPhotos™, Web art and more - including thousands of exclusive images you won't find anywhere else! Find and use the perfect image fast with the colour catalogue or the convenient search feature of the MasterClips® browser.

IMS106 **$99**

Key Features

- The convenient MasterClips® Browser
- Full colour sampler manual included
- Educational Multimedia Quick Tour clearly explains how to use the included MasterClips® Browser
- Handy Design Guide helps you to understand how to use the clip art in your presentations and projects
- A large selection of Web Art images and dazzling animations for the Web
- A spectacular collection of photos and photo objects
- Vector based WMF clip art that are fully editable and completely scalable .

IMS101 MasterClips 45,000 **$49**

MasterClips Publisher V3

IMSI

Create it at Home!

Publishing from home or your office? It's both easy and fun with MasterClips Publisher. Wizards and templates walk you from layout to finish. Or you can create your project entirely from scratch. Either way, you have access to the MasterClips award winning collection, as well as the powerful tools of desktop publishing. So, whether for print or the Web, MasterClips Publisher is all you need to make any document attractive and effective.



Special Price (limited time only)

Key Features:

- MasterClips 75,000
- Avery Label Templates
- 2,000+ fonts
- Professionally designed templates
- 3D Power Text
- Frame, Text, & Picture Rotation
- Web Publishing
- Mail Merge
- MicrosoftÆ Office Compatible
- Complete Set of Drawing & Layout Tools
- Photo, Art & Text Editing

IMS145 MasterClips Publisher V3 **$59**

MasterClips WebArt 100,000

Premium Images For Stunning Web Sites.

MasterClips Web Art provides you with the highest quality Web-ready images available so you can easily create professional looking Web pages. Whether you are a beginning Web designer or a pro, MasterClips Web Art gives you the professional results you need fast. Choose from thousands of clip art and photo images for specific uses or create a consistent look throughout your entire Web sites with exclusive Matching Sets. MasterClips Web Art's easy to use browser lets you view images how they would appear on the Web.



IMSI

IMS134 MasterClips Web Art **$89**

All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

For the cost of a local call **Orderline 1300 300 003 or 02 9700 8800**

Sales Lines Open 9am 'til 6pm Monday to Friday and 10am 'til 3pm Saturday.

VISA MasterCard BPAY

DON'T FORGET TO ASK FOR YOUR FREE GIFT

Adobe Acrobat 4.0 - The essential tool for universal document exchange

Adobe Acrobat is an essential link between merely transmitting information and making it valuable for anyone who needs to share documents. By enabling you to share documents across platforms and software applications, regardless of versions and fonts, Acrobat solves a fundamental problem of universal information access.

Here are the benefits Acrobat offers you:

- **Flexibility** - Acrobat lets you exchange documents freely, without worrying about compatibility issues.
- **Control** - PDF lets you share documents without sacrificing their original design. PDF preserves the documents' formatting, colors, fonts, and images exactly as they were created, assuring you that everyone with whom you share your documents will experience the same information the same way.
- **Productivity** - Acrobat streamlines and accelerates the entire document creation process. Quickly creating and delivering PDF files that everyone can view, distributing them electronically for comments and approvals, and efficiently publishing them in any medium replaces an often cumbersome, time-consuming, paper-based workflow.
- **Accessibility** - PDF files can be distributed in print, on the Web, on corporate servers, attached to e-mail, or on CD-ROM. All of your colleagues, partners, and customers can access the same information.
- **Reliability** - Acrobat and PDF transcend application incompatibility and font substitution. PDF files contain all the fonts, images, colors, and formatting data to display online and print on paper exactly the same, every time.

So if sharing documents is part of your everyday responsibilities, Adobe Acrobat will help you work faster, smarter, and more productively than ever.



Call us for the lowest price

Adobe Publishing Collection

The complete package for the creation, assembly and delivery of printed & electronic documents



For Windows & Macintosh



If you have to choose one box - Choose This One!

The Adobe Publishing Collection for Windows and Mac brings together the latest versions of six of the World's leading graphic software packages all in one box. But not only do the come as one - they work as one. Drag and drop features lets users move effortlessly between programs, ensuring a seemless workflow - whether for print, multimedia or online. The Adobe Publishing Collection comes at a fraction of the price of buying Adobe software separately and we're sure you will agree that choosing the Adobe Publishing Collection is a 'No Contest' decision. A comprehensive and cost-effective way for users such as graphic artists to business professionals to start publishing. Included in the one package are the following Adobe packages:

- Adobe PageMaker 6.5
- Adobe Photoshop 5.0
- Adobe Streamline 4.0
- Adobe Illustrator 8.0
- Adobe Acrobat 3.0
- Adobe Dimensions 3.0

ADO130 Adobe Publishing Collection II for Windows **$1749**

ADO131 Adobe Publishing Collection II for Mac **$1749**

Adobe Internet Pack

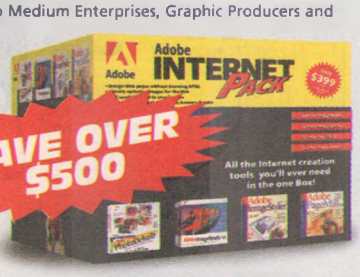
All the Internet creation tools you'll ever need in the one box.

This unbelievable integrated package, includes FOUR Adobe Web products in one box for a special price. You can design Web pages without having to know HTML, quickly optimise images for the Web, add special effects to your images and create buttons, navigation bars, banners and more.

Perfect for home users, Small to Medium Enterprises, Graphic Producers and SOHO.

The Adobe Internet Pack includes full working versions of the following Adobe products:

- ImageReady 1.0,
- ImageStyler 1,
- PageMill 3.0,
- PhotoDeluxe 2.0



SAVE OVER $500

ADO125 Adobe Internet Pack for Windows **$359**

ADO126 Adobe Internet Pack for Mac **$359**

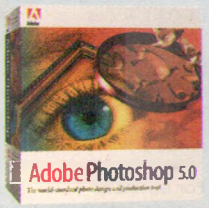
Adobe Photoshop 5.0

The World standard photo design and production tool.

Adobe Photoshop is used by more creative professionals around the world than any other image editing program. It provides the power to create compelling images and the precision to prepare them for the printed page, the Web, and virtually any other medium.

The following key features highlight just some of the amazing cabilities of this program:

- Create, retouch and enhance images in many formats for virtually every medium.
- Professional photography tools including brushes textures, Dodge and Burn.
- Adjust colour brightness and contrast, replace colours, and convert between colour formats, including CMYK and RGB.
- Multiple layers for overlaying of images, text, and graphics with complete freedom to edit and experiment with any element.
- Share files seamlessly between Windows and Mac systems and convert any PDF, Illustrator® or EPS files.



ADO120 Adobe Photoshop 5.0 for Win **$1099**

ADO139 Adobe Photoshop 5.0 for Mac **$1099**

EDUCATIONAL pricing AVAILABLE

All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.



Daewoo

14 inch monitor

1431X Colour digital monitor. 1024 x 768 resolution NI, 0.28mm dot pitch, non glare screen. 3 year warranty.

DAE002 $249



Daewoo

15 inch monitor

518B FST Colour digital monitor. 1280 x 1024 resolution (at 60Hz). 0.28mm dot pitch, non glare anti static screen. 20 mode memory. 3 year warranty.

DAE003 $299



Daewoo

17 inch monitor

1710B FST Colour digital monitor. 1280 x 1024 resolution (at 60Hz), 0.28mm dot pitch, non glare anti static screen, 20 mode memory. 3 year warranty

DAE004 $599

Tamzin



INTERNATIONAL SOFTWARE WAREHOUSE Pty. Ltd.

EVERYTHING FOR YOUR PC - DELIVERED NATIONWIDE!



KENS KORNER

This month I have heaps of fantastic bargains waiting to be snapped up. Some are previous versions, others have damaged packaging, but ALL carry full guarantees and warranties. Remember, there are limited stocks so call quickly.

AUS118 Ramgate **$15**

MAG008 Magtron 15" Monitor (5 only) **$249**

KEN081 Rapid Remote v1.1 (10 only) **$19**

KIS033 Rescue Me Wings **$10**

MCA029 McAfee Web Crypto v1 **$10**

There are many more that I can't fit in here. For a full listing, check out my section on our website at www.iswh.com.au

See you next month!

Ken

BladePro

The Ultimate Plugin. Create and Explore Touchable 3D Surfaces

Extend the power of your image editor today!

BladePro is a Photoshop compatible plugin that fits most image-editing packages. Create touchable 3D looks by applying finishes such as tarnish,irridescence,and glassiness for incredible results. Hundreds of presets give you eye catching,web buttons, and more, instantly.





BladePro offers custom textures, zoomable previews,new light sources, mutation, and more.
BladePro comes complete with:
- Hundreds of Presets
- Heaps of Tutorials
- Online Links
- Tons of Textures
- Associated graphics tools to evaluate and more...

With BladePro you can quickly create:
- tarnished copper
- dirty brass
- reflective glass blobs with rainbow caustics
- chrome text that reflects it's environment
- oxidized metal with iridescent colours
- cracked paint
- eroded mud
- scaly plastic
- glittery aluminium
- rough stone
- your logo embossed into gold foil

and much much more..

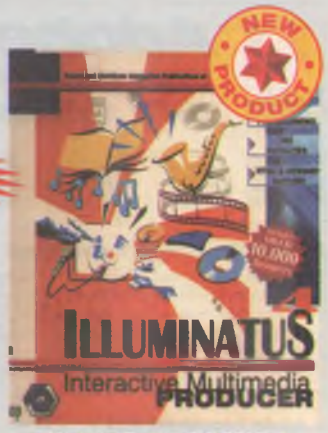
Stock Code:COM105

Zap $69

Illuminatus 4

Add the excitement of interactive multimedia to your bright ideas
Whatever you've got to say, interactive multimedia makes it special. When you've only got a moment to make an impact, interactive multimedia gives you the advantage.
Illuminatus has always been the easy way to create eye-catching interactive multimedia for business or pleasure. Now the latest version adds the sophistication and functionality of products many times the price while keeping that much-applauded ease of use.
Combine words, pictures, video animation, sound and music into interactive publications the user can explore. Show them on your PC or publish them to floppy disk or CD ROM and distribute royalty-free to customers, clients, friends and family.

Amazing Value



Everything you need...
Illuminatus includes thousands of multimedia resources and professionally-designed templates and sample publications for quality multimedia in an instant whether you're a professional designer or not.

Special Features:
- Fully-customisable transition effects including stars, circles and jigsaw.
- Semi-transparent and irregular-shaped video that has to be seen to be believed.
- Automatically narrate text for children's reading skills and language tutorials.
- In-built scoring for easy CBT that won't cost you a fortune.

Ideal for...
- Multimedia Presentations
- Interactive Promotions and Catalogues
- Education at Home and School Help Systems
- Computer-based Training
- Demos for Shows and Shops
- Interactive Books
- Digital Newsletters and Questionnaires
- Electronic CVs
- HTML Business Cards
- Simple Games and Puzzles

Stock Code:COM106

$149

Fandango

The fast, fun way to create screensavers of all kinds for Windows 95

All the complex work is already done for you, just load some images, choose a style and adjust the simple, easy to understand controls and go. A Fandango screensaver works by playing a set of still or animated images across the screen in one of a series of customisable styles. The style of the screensaver is set with a single toggle button and the various settings, including a mysterious Factor X, can be set as required. You can choose to play the screensaver across the current desktop, a blank screen in a colour of your choice or a graphical background. Also any of the styles can be used in Eraser mode which eats away the desktop as the actors move to reveal a colour or image beneath.
It's quick and easy to learn and requires absolutely no programming.
Once you've finished your masterpiece you can install it on your own system or save is as a stand alone project for others to use. Fandango screensavers can be freely distributed and installed on other people's computers just like any standard Windows screensaver and will appear in the Control Panel options, available for selection.
You can use any of the hundreds of specially created actors included with the software or incorporate your own graphics, logos and images.





For Business:
Brand your in-house or in-store machines with your corporate logo or a promotional message.
For Home:
Create a screensaver from your favourite family snapshot or cartoon character.
For the Web:
Create promotional screensavers to download from your web site to encourage surfers

STOCK CODE:COM103

$45

Features
- Easy to use
- No programming required
- Royalty free distribution of your screen savers
- Import: AVI; BMP; JPG; PCX; PNG; and TGA
- Import MID and WAV files to add music and sound effects
- 5,000 resources included plus samples and tutorials



All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

For the cost of a local call Orderline 1300 300 003 or 02 9700 8800

Sales Lines Open 9am 'til 6pm Monday to Friday and 10am 'til 3pm Saturday.

VISA MasterCard BANKCARD AMERICAN EXPRESS BANKCARD iBPAY

FIND IT CHEAPER? CALL US - WE WON'T BE BEATEN!*

*See page 48 for Price Pledge

Microsoft Office 97 Training

Your choice of video or multimedia!



Finally, one for the Small Office/Home Office user in mind. Starting with the basics in utilisng Windows, you can move readily into individual tutorials of each of the Microsoft Office 97 Professional Applications. The powers of this product are unveiled to you the user, allowing you to work smarter rather than harder.

Tutorials Include:

- **Windows 95/98**
 Discussing menus/shortcut menus, multi-tasking, working with the Explorer, moving and copying/files and folders, placing programs in the start-up menu, installing a printer, installing/removing programs and much more.
- **Word 97**
 Using shortcut keystrokes, using the over-type mode, animating text, using thesaurus, finding and replacing text, using text colour, applying font styles, grammar checking and more.
- **Excel 97**
 Discussing workbooks/worksheets, selecting cells, formatting cells, changing column/row widths and heights, creating a workbook, using templates, creating a formula, too much to mention!
- **Powerpoint 97**
 Viewing a slide show, entering data in a presentation, adding clip art to a slide, creating/editing a chart, creating speaker notes, using the pen option, using the slide master and lots more.
- **Access 97**
 Viewing fundamental dbase components, creating a dbase, adding a table, changing field properties, filtering a table, creating a form, sorting records.
- **Outlook 97**
 Outlook and mail groups, including an attachment, replying to a message, creating storage folders, using message tracking, using AutoSignature, viewing tracking results.

Free Bonus Interactive Training CD Inside



Multimedia VIA082 $149

Video VIA073 $129

Teach Yourself CD Tutorial Range

Hi-quality multi-media containing lots of video, with each CD equivalent to 4-6 hours of training. Works on Windows PC with sound card and (Win3.1/95/98/NT4)

Ask about our NEW Teach Yourself PC Maintainence Range

Web Page Publishing

Learn the skills you need to design and publish your own web pages with this comprehensive set of CD-ROM tutorials, starting right from the beginning with defining and discussing the fundamental concepts of HTML and web design.



Four tutorials in one! Includes:

- Teach Yourself FrontPage 98
- Teach Yourself HTML, Introduction
- Teach Yourself HTML, Intermediate
- Teach Yourself HTML, Advanced

VIA 090 Web Page Publishing 4 Pack..... **$99**

First Step Computer Training



Pace your way through individual interactive CD-ROM tutorials, to help you take your first step towards using your Microsoft operating system and applications effectively and efficiently. Learn everything from using a mouse, through to Windows Explorer, format a toolbar and change text appearance in Word or type formulas and copy formats in your Excel spreadsheet.

Three tutorials in one! Includes:

- Teach Yourself Windows 95/98
- Teach Yourself Word 97
- Teach Yourself Excel 97

VIA080 First Step **$69**

Computer Training Basics

Learn how to get the most from your home or small office PC. Taking the Teach Yourself - First Step Pack just one step further, you can learn all or even the World Wide Web and how to use it to your advantage. Coming to grips with terms such as ISP, URL and Hypertext makes using the WWW an adventure, every time. And if you are a Quicken user then this 6 Pack is for you!



Six tutorials in one! Includes:

- Teach Yourself Windows 95/98
- Teach Yourself Word 97
- Teach Yourself Excel 97
- Teach Yourself Quicken
- Teach Yourself Internet
- Teach Yourself World Wide Web Teach

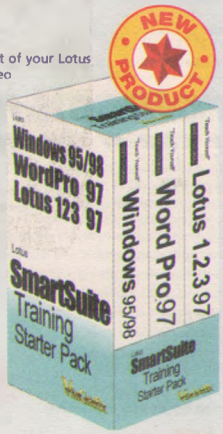
VIA081 Training Basics **$149**

Smart Suite Starter Pack

3-Video Tutorial

Now you can get more out of your Lotus SmartSuite with this 3-video set that includes the basics of Windows 95/98, WordPro 97 word processing and Lotus123 97 spreadsheet.

Video tutorials allow you to sit back and relax while you learn, where and when it is convenient for you! Soon you will have your confidence levels up and your frustration to a minimum. This pack has been designed specifically to get you going fast at a price that won't break the bank.



VIA084 SmartSuite Starter Pack **$69**

MCSE NT4 Certificate

Interactive CD-ROM Tutorials

Essential if thinking of becoming a Microsoft Certified Systems Engineer NT4

This series of interesting and effective CD-ROM tutorials, provides you with your own virtual classroom teacher along with hands-on tutoring covering all areas of NT4. Each CD is equivalent to 6-8 hours of instruction. This series of CD have been expertly designed to cover all essential areas of NT4 along with preparing you for becoming an MCSE. Just look at what each CD covers. Buy the complete the course and save over $180.



Features

- Want to gain a valuable computer qualification?
- Essential qualification for most computer engineering job
- Each CD is equivalent to 6-8 hours of training
- Purchase the complete sets and SAVE

Electives available!

VIA056 NT4 Complete Course - 12 CDs $799

Course Units Sold Separately:

Exam 70-058, Implementing and Supporting Microsoft NT Networking Essentials:*

VIA057 NT4 Networking Essentials Vol 1 **$89.95**
VIA058 NT4 Networking Essentials Vol 2 **$89.95**

Exam 70-068, Implementing and Supporting Microsoft NT 4, Server in the Enterprise:*

VIA059 NT4 Enterprise Vol. 1 **$89.95**
VIA060 NT4 Enterprise Vol. 2 **$89.95**
VIA061 NT4 Enterprise Vol. 3 **$89.95**
VIA062 NT4 Enterprise Vol. 4 **$89.95**

Exam 70-067, Implementing and Supporting Microsoft NT Server 4:*

VIA063 NT4 Server Vol. 1 **$89.95**
VIA064 NT4 Server Vol. 2 **$89.95**
VIA065 NT4 Server Vol. 3 **$89.95**

Exam 70-073, Implementing and Supporting Microsoft NT Workstation 4:*

VIA066 NT4 Workstation Vol. 1 **$89.95**
VIA067 NT4 Workstation Vol. 2 **$89.95**
VIA068 NT4 Workstation Vol. 3 **$89.95**

Viagrafix Interactive CD Titles also Include:

- ACT!
- CorelDRAW
- Internet Explorer
- Lotus Notes
- Netscape
- PC Maintenance
- PhotoShop
- Quicken
- WordPerfect
- Delphi
- Java
- Visual C++
- Visual Basic

From **$59**

Corporate Site Licensing Available

Enquire Now!



Bradley

All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

Orderline 1300 300 003 or 02 9700 8800 Order by fax 02 9700 8801

Enquiries 02 9700 8800 Internet site www.iswh.com.au

13 Bradford Estate
10 Bradford St
Alexandria
Sydney 2015

INTERNATIONAL SOFTWARE WAREHOUSE Pty. Ltd.

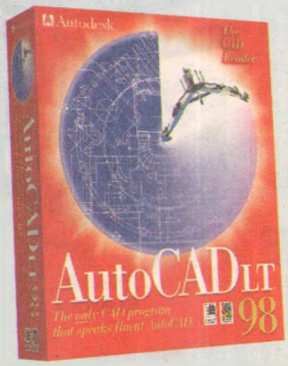
EVERYTHING FOR YOUR PC - DELIVERED NATIONWIDE!

Category Index

Accounts 12,13
Business 16,17,18
CAD 24,25
Communication 26,27,28
Digital Cameras....43
Graphics Cards 35,40,41,42
Graphics/DTP Software 18-22
Microsoft 3,10,11
Modems 46,47
Networking....44,45
Monitors.....40
Notebooks 4
OCR 8
PCs 5
Printers 6,7
Reference/ Training 23
Scanners 8,9
Storage 36-39
Tape Backup.....38
UPS 44
Utilities 29-32
Video Capture 42
Voice Recognition 14,15
Y2K 33,34

AutoCAD LT 98

The award-winning AutoCAD just got better!



- A visual, intuitive interface makes AutoCAD LT 98 easy to learn, use and remember,
- Quick, precision drawing tools ensure professional drawing productivity,
- Innovative online help and self-paced multimedia tutorials ensure fast product learnability,
- Because it's part of the Autodesk family of products, AutoCAD LT 98 is the only low-cost, 2-D drafting program that's 100 percent compatible with all the innovations in AutoCAD.

New AutoCAD LT 98 was designed to make your job a little easier! AutoCAD LT 98 is the only affordable, easy-to-use 2D drafting solution that offers superior performance, speed, reliability and seamless integration with AutoCAD software. A proven favourite in the affordable 2D CAD category, AutoCAD LT software has been ranked #1 in new and total unit sales for the last three years in a row and boasts more than 800,000 users worldwide.

QUI051 AutoCAD LT 98 **$699**

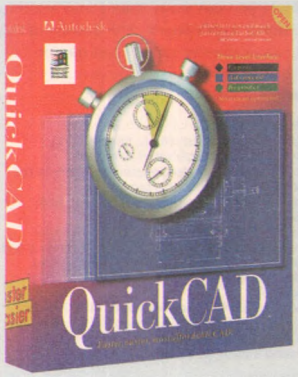
QUI053 AutoCAD LT 98 U/G **$365**

AUT102 AutoCAD LT 97 3 IN 1 Symbols Library **$89**

QuickCAD

Faster, easier, and most affordable CAD!

NEW PRODUCT



Three Level Interface:

Expert, Advanced, Beginner

Work at Your own Experience Level!

QuickCAD Millennium Edition is the faster, easier, most affordable CAD software, whether you're a first-time user or an expert. A three-level interface prompts you to choose your level of experience - Beginner, Advanced, or Expert - to easily create any technical drawing. Other features include QuickHatch, AutoArray, Jump Snap, Guidelines, Realtime Pan and Zoom and compatibility with most popular CAD programs. In addition, QuickCAD software's DWF export allows you to publish your drawings on the Web. QuickCAD Millenium Edition offers features and performance to allow you to become more productive even faster.

AUT040 QuickCad **$75**

VISIO Standard 5.0

The smartest way to create all your business diagrams

With Visio you can easily create any kind of business diagram - everything from timelines to network diagrams to office layouts.

Diagrams for all business users

Visio Standard is designed to help increase the productivity of mainstream business users by allowing them to easily communicate and track work projects and flow, reporting structures, and concepts or systems. Visio Standard allows business users to visualise information commonly stored and distributed in databases and spreadsheets, thus avoiding complex and time-consuming analysis of data and figures. In addition, dynamic links between business diagrams and the databases and spreadsheets that hold the raw data are easily integrated - so an organisation chart can automatically reflect changes in an employee database, or a flowchart can report the costs associated with a new process.

NEW VERSION



Microsoft compatible

Visio is Microsoft compatible enabling you to easily build and share your business diagrams. Best of all you can simply drag and drop your diagrams into any OLE compliant word processor, presentation package, spreadsheet or other software.

Supports Internet/Intranet Standards

Visio Standard also helps you get your visual information out to the people you need to via its built-in support for Internet/Intranet standards (HTML and ActiveX) and document management standards ODMA).

VIS099 Visio 5.0 Standard **$249**

VIS100 Visio 5.0 Upgrade **$159**

VIS101 Visio 5.0 10 user license pack **$1999**

VISIO TECHNICAL Technical 5.0

Create & share technical drawings



Simply choose from the included library of more than 4,000 expert-designed, industry-specific symbols, then drag and drop the shapes you need onto the drawing page to assemble technical diagrams in record time.

1. **Fast** - its drag-and-drop drawing style and intuitive work environment enables users to quickly produce high-quality technical diagrams with little or no training.
2. **Intelligent** - Every SmartShapes symbol can store a unique set of data and is programmed to behave like its real-world counterpart.
3. **Compatible** - With built-in CAD integration you can read and write files in popular CAD formats, and even convert static CAD symbols into dynamic Visio Technical shapes.

$529 STOCK CODE: VIS107

VIS102 Visio Technical Upgrade **$339**

VIS103 Visio Technical 10 user license pack **$4659**

VISIO Professional 5.0

For the IT experts!



Visio Professional 5.0 makes it easy to visualize and communicate the IT infrastructure of your business across the cross-functional boundaries in your organisation, sharing and leveraging data with your coworkers. Job-specific shapes and tools help you maximize efficiency.

- Network diagramming and documentation.
- Software diagramming and documentation.
- Database diagramming and documentation.
- Share and exchange information.
- Create custom shapes.
- Integrate Visio Professional into a custom solution.
- Add ActiveX controls.
- Tap our developer resources.

$529 STOCK CODE: VIS106

VIS104 Visio Professional Upgrade **$339**

VIS105 Visio Professional 10 user license **$4659**

All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

For the cost of a local call Orderline 1300 300 003 or 02 9700 8800

Sales Lines Open 9am 'til 6pm Monday to Friday and 10am 'til 3pm Saturday.

FIND IT CHEAPER? CALL US - WE WON'T BE BEATEN!*

*See page 48 for Price Pledge

FloorPlan 3D Design Suite

Bring your home, office, & garden ideas to life.

FloorPlan 3D Design Suite has what any building or landscaping project needs. Easy-to-use tools give you the power to transform design ideas into stunning photo-realistic 3D images.

Whether you're creating a home, remodelling an office, adding a deck or landscaping a ten-acre spread, the FloorPlan 3D Design Suite has everything you need. Perfect for custom homes, detailed offices, multi-story layouts, remodelling jobs, easier landscaping, bathrooms, kitchens, and project planning

DRAW WITH SPEED AND PRECISION.

Get started quickly with an existing layout, or start from scratch using FloorPlan 3D's easy-to-use drawing tools. The multimedia quick tour shows you how. Designing custom walls, stairs and roofs has never been easier.

VIEW YOUR PROGRESS IN 3D.

Create custom views. Navigate your designs with easy-to-use, walk-through commands. FloorPlan 3D's flexible tools even let you edit objects and make colour or texture change anytime.

RENDER LIFELIKE PREVIEWS.

See your virtual home from any angle with realistic shadows and reflections using Lightscape technology. FloorPlan 3D's unbeatable previews render the "photo-realistic" images of other products obsolete.

REALISTIC TEXTURES.

If you can't decide between granite or marble, redwood or brick, FloorPlan 3D shows you the way with texture alternatives from floor to ceiling!

AWARD-WINNING PLANS

Kick your project off by browsing the Interactive Multimedia Home Designs Encyclopedia from HomeStyles. Whether you are looking for a two-story Tudor or an expansive ranch house, the sheer range of top quality designs are sure to inspire. We've even included 150 editable plans to get you started!

"FloorPlan highlights just how incredibly powerful and affordable professional-level CAD programs have become" PC Review, February 1998.



IMSI

Key Features:

- Lightscape Technology
- FloorPlan 3D
- 3D Garden Designer
- HomeStyles Home Design Encyclopedia
- TurboProject Express
- Home & Office Symbols
- Unlimited database expandability
- Same document floor levels
- Interactive multi-run stairs
- Automatic creation of opening for stairs

Stock Code:IMS132

$99

TurboCAD V6

Improve how you design, draw and visualise your projects with new TurboCAD V6

New Version 6 goes way beyond making the normal feature improvements and introduces even more tools and incredibly powerful technology getting to the core of professional quality rendering.

TurboCAD V6 is CAD for the Internet Age! Now that it has its own Integrated Internet Palette, TurboCAD V6 connects you to the World Wide Web and a wealth of useful resources available online. Using your integrated browser, you can actually share desktop space and browse www.turboCAD.com and other Web sites as you work within the application.

TurboCAD V6 is feature rich and powerful ! Don't Compromise your power to impress. Use Continuous Speech Recognition Technology to free your hands while you work by simply using voice activated commands.

Version 6 also includes a Software Developer Kit; Advanced Raster-to-Vector; Familiar Interface Option for Microstation and AutoCAD; Lightscape Technology and much , much more.....



IMSI

IMS146 TurboCAD V6 **$199**

IMS119 TurboCAD V6 Professional **$599**

Visual CADD V3

Fast, efficient drafting and design

NEW PRODUCT

Design and draft with efficiency using Visual CADD 3.0. Its unencumbered structure and two-letter shortcuts let you create architectural drawings, schematics and engineering projects — fast. Its open API allows for the creation of utilities and applications based upon the Visual CADD engine. With plans, symbols and fonts, you can generate custom designs that deliver even more information in less time. Visual CADD version 3.0 has kept the familiar look and feel of its predecessors while improving on features such as the layer manager and symbol manager, and adding new features including running snaps and layer groups.



Key Features

- 5,000+ Architectural Symbols
- 5,000+ Mechanical Symbols
- 5,000+ Electrical Symbols
- 300 Editable House Plans
- Raster-to-Vector with OCR Software
- Scan Software

IMSI

IMS150 Visual CADD V3 **$599**

Kodak CD-R Discs **$2.70** each Traxdata/

Princo CD-RW Discs **$9.50** each

Bulk pricing (100 or more) available. Call our sales team for details.



All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

INTERNATIONAL SOFTWARE WAREHOUSE Pty. Ltd.

EVERYTHING FOR YOUR PC - DELIVERED NATIONWIDE!

WEBSITE

We have a new website address:

www.iswh.com.au

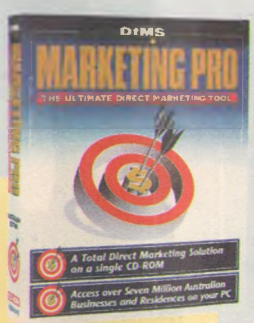
If you have visited our website before, we invite you to take another look. You will find it has changed quite dramatically. More information, more products and more importantly, more great deals! Thousands of products, all at the best prices. Whether you are looking for information, or want to place an order, make sure you pay us a visit first!

The only thing better than having so much information at your fingertips... is discovering the best ways to make use of it!

Marketing Pro

The Comprehensive Direct Marketing Tool !

Put cost efficient and effective marketing at your fingertips! Make the most of your marketing dollar! Marketing Pro puts the ultimate Direct Marketing Tools in your hands. After all, no-one knows your product or your service better than you, so why not make the most of your market potential? Put Marketing Pro to work for you and you'll discover the most cost effective way to increase business!

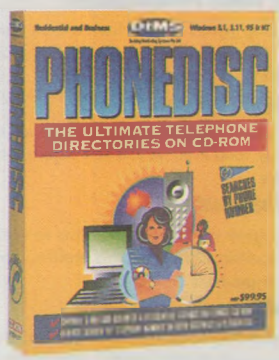


- ✔Access over 8,000,000 prospective clients!
- ✔Search for, locate and compile prospective leads and clients easily and quickly.
- ✔Search and compile data by business type, city, address, phone number, postcode, Ad size, address, industry codes, state, regions. employee size, mobile-phone number and much more!
- ✔Utilize powerful software functions that provide you with the tools to organise, select and compile data the way you need it.
- ✔Take advantage of the most up-to-date and powerful data retrieval engine.
- ✔Query by example searching.
- ✔Easy label and report printing.
- ✔Easily eliminate duplications.
- ✔Utilize Marketing Pro for the ultimate telemarketing facilities.
- ✔Auto-dial and much, much more!
- ✔Updates available quarterly.

DTM003	Marketing Pro Melbourne	$495
DTM004	Marketing Pro Sydney	
DTM005	Marketing Pro Brisbane	$595
DTM006	Marketing Pro Vic/Tas	$595
DTM007	Marketing Pro NSW/ACT	$595
DTM008	Marketing Pro QLD/NT	$595
DTM009	Marketing Pro SA/WA/NT	$1095
DTM010	Marketing Pro National	

Phonedisc

With Search by Phone Number!



A powerful tool for finding what you want and who you want in seconds! Imagine the advantages of a telephone directory that not only gives you much more information, but gives it to you the way you want it! For businesses or home use, Phone Disc provides a powerful tool for locating new clients, suppliers, friends, relatives or virtually anyone, anywhere with just a few easy keystrokes.

Features:

- ✔ Powerful reverse search capabilities
- ✔ Search by Name, Company, Initials, Surname, Suburb, state, Postcode or line of Business.
- ✔ Full Boolean search capability
- ✔ "Sounds-like" facility
- ✔ Auto dialer facility
- ✔ Contact sensitive on-line help
- ✔ Copy entries to the Window Clipboard
- ✔ And much, much more!

DtMS™ Desktop Marketing Systems Pty Ltd

Stock Code: DTM001 **$89**

CD Phone Directory

Virtually every Australian Business & Residential Phone Directory at your fingertips!

Don't miss this amazing offer! This special edition of CD Phone Directory comes with a Bonus $10 worth of free long distance phone calls... so you're getting CD Phone Directory for half price! Imagine how much easier and faster it would be if you had virtually every Australian business & residential telephone number on your own PC! Only DtMS CD Phone Directory puts Australia at your fingertips!



- ✔ Hurry, this limited edition includes a bonus $10 worth of long distance phone calls!
- ✔Gives instant access to over 8,000,000 business and residential listings across Australia!
- ✔Search by Company Name, Line of Business, Surname & Initial, Suburb, State or Postcode!
- ✔Provides you with the tools to find friends, relatives or all those people you've wondered about... easily and quickly!

FREE $10 worth of long distance phone calls

DTM011 CD PHONE DIRECTORY **$19**

Fax Pro

Instant Sales For Your Business!

Forget about hit and miss mail-outs - dial direct and reach your target market instantly!
Why waste time and money on expensive mail-outs when you can go directly to your target audience at the touch of a button? Put the power of direct marketing at your fingertips with FAX PRO!



- ✔ Access over 300,000 Australian & New Zealand business fax listings!
- ✔ Sophisticated searching techniques make fax-broadcasting a breeze.
- ✔ Locate, organise, file or print your search criteria easily, quickly and in the format that's most appropriate for your application.
- ✔ Compile, Tag, File, Print and Fax-queue virtually any way you want.
- ✔ Combine and sort sets easily and quickly!
- ✔ Isolate and locate the businesses that need your service or product and contact them quickly and cost effectively.
- ✔ Take control of one of the most cost effective marketing tools available.
- ✔ Give your business that marketing edge!

DTM002 Fax Pro **$275**

All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

For the cost of a local call **Orderline 1300 300 003 or 02 9700 8800**

Sales Lines Open 9am 'til 6pm Monday to Friday and 10am 'til 3pm Saturday.

INTERNATIONAL SOFTWARE WAREHOUSE Pty. Ltd.

DON'T FORGET TO ASK FOR YOUR FREE GIFT

Australia on Disc

Australia's complete Electronic Phone Book just got even better

November 98 Release Out Now!

Australia On Disc, the complete set of Australian business and residential telephone directories on CD-ROM, now includes new Geographica! mapping software, which gives users have the added ability to graphically map search results.

AOD continues to offer access to over 7.3 million names, addresses and telephone numbers, both business and residential, in a fully exportable version which can be used for direct mail, telemarketing or market research.

- All 55 National Telephone Directories
- ✱Over 1.28 Million Business Listings
- ✱Over 6.1 Million Residential Listings
- ✱Over 182,000 fax numbers
- All on CD-ROM on your own PC
- ✱PLUS New Mapping Software Included

NEW Features for November 98:

- Contains Major Updates including all Capital City Residential listings
- All books are now 1998 Editions
- Over 182,000 fax numbers!
- NEW Dedupe on Name & Address or Name & Phone Number!
- NEW Custom report Generation!
- Enhanced Mapping software now includes cut & paste, printing & NEW Territory Management feature!

Key features:

- Radius searches from mapping software
- Select postcodes using point and click from a map
- 'Wild Card' searches
- Thematic shading of search results on map
- Design your own reports
- Mailing label generation and printing
- Select record tagging
- Random record tagging
- Save search facility
- List merge facility
- Export to ASCII format
- Export to Tracker (selected versions)
- De-duplication of records
- Auto-dialing facility
- Field lookup tables
- Word searches within fields
- Standard business classifications
- AND MUCH MORE!



NEW PRODUCT

Stock code:DDD003

$549

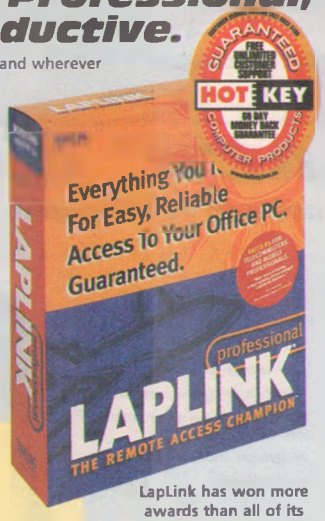
DDD001 Australia on Disc - Business	$339
DDD002 Australia on Disc - Residential	$339
DDD003 Australia on Disc - Business & Residential	$549

Wasting too much time on the road? Get LapLink Professional, and get productive.

LapLink Pro lets you work whenever and wherever it's convenient for you. When you need to share information between an office PC, a laptop, or your home PC while travelling or working away from the office, LapLink Pro will get you connected.

LapLink Pro sets the standard in usability and is the #1 rated choice for easy, speedy and reliable remote control and file transfer by mobile professionals and telecommuters.

When you take a look at the features this product offers, it's no wonder that LapLink Pro is agreed upon by the experts to be the "best remote control access solution today":



- Print redirection from remote PC to local printer, or to a remote PC's printer
- Optimised for Windows 98
- Supports USB cable for faster file transfer
- Includes bonus Windows CE remote control software
- Single mode operation - no need to set "guest" or "host" modes
- Adaptive compression automatically gives optimal speed over all connections
- Integrated scheduler for Windows 98, 95,NT
- Smart Install configures all devices automatically - no user intervention required
- Compatible with Windows 3.1, 95, 98, and NT

LapLink has won more awards than all of its competitors put together.

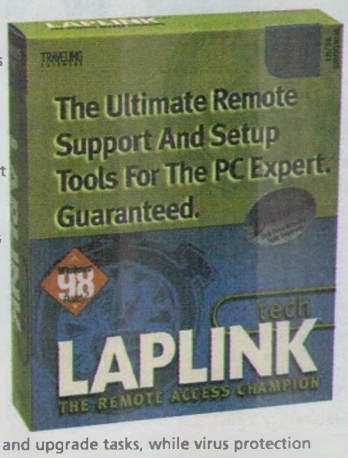


LAP011 LapLink Professional $179

Laplink Tech

Put the ultimate support and setup tools to work for you.

LapLink Tech provides the tools you need to remotely support customers, set up and upgrade PCs quickly and defend against viruses - all in one complete solution. No matter where your customers are or where you work, LapLink Tech offers you the flexibility to support your customers whenever they need it. LapLink Tech is designed for Windows 95 and NT 4.0, and is completely compatible with Windows 98. It also works with any earlier version of LapLink for Windows or Remote DeskLink.



Its Remote Control and File Transfer capabilities mean you won't have to leave your desk to work with remote users. Disk cloning speeds system installation and upgrade tasks, while virus protection defends your system. Plus our industry-leading useability makes sure you gain benefits right away. LapLink offers all the key tools to make remote support and system setup a snap:

- * Remote Control
- * Simultaneous Voice Chat
- * File Transfer
- * Automated File Synchronization
- * Print Redirection
- * Security
- * Cross-platform compatibility
- * Disk Cloning
- * Virus Protection - WinGuard

LAP009 LapLink Tech $279

All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

Orderline 1300 300 003 or 02 9700 8800 Order by fax 02 9700 8801

Enquiries 02 9700 8800 Internet site www.iswh.com.au

13 Bradford Estate
10 Bradford St
Alexandria
Sydney 2015

LEARN THE SECRETS OF THE PROFESSIONALS...



...WITH HOME MOVIE DIRECTOR

Now you can produce a Video Family Album quickly & easily using just your camcorder & VCR. Developed by TV & film making professionals, this hit contains easy to follow handbooks & set up guides, script editor, video label printer plus a bonus instructional video & CD-ROM. Taking you step by step, learn how to capture all your most important family memories, then delight your family & friends with the results. This motion picture album is a must for all camcorder owners.

NITozo..... $69

For professional video editing, take a look at the Studio 400 on p43

Ali



INTERNATIONAL SOFTWARE WAREHOUSE Pty. Ltd.

EVERYTHING FOR YOUR PC - DELIVERED NATIONWIDE!

3COM PALM III



Stay organised, wherever you go! The 3COM Palm III is the latest version of the award winning range of personal organisers from 3COM. Weighing in at an amazing 126 grams (approx 160 grams including the batteries) and measuring 12cm by 8cm by 2cm, the Palm III can:

- Store 6000 addresses
- 5 years of appointments
- 1500 to do items
- 1500 memos
- 2[illegible] emails

It includes an address book, date book, to do list, memo [illegible] report templates, calculator, security options and some bonus games. Powerful enough to keep you organised. Small enough to fit in your pocket. The amazing Palm III from 3COM.

USR051.....$599

WinFax PRO 9.0

The world's #1 choice for hassle-free faxing!

SYMANTEC.

WinFax PRO 9.0 software takes Symantec's industry-leading fax solution to new levels of flexibility, reliability, and ease of use.



With WinFax PRO 9.0

- Small businesses can look more professional by sending crisp laser-quality faxes.
- Workgroups can save money by sharing a fax modem and phone line though a non-designated fax host.
- It can also notify mobile users via pager or PCS cell phone as soon as an important fax arrives, or automatically forward faxes to another fax number or an e-mail address.

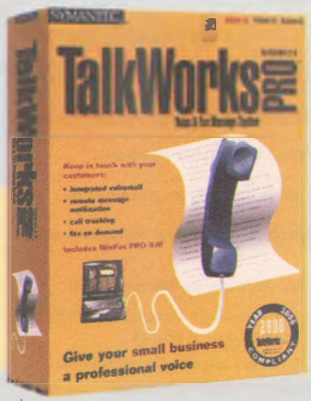
SYM191 WinFax PRO 9.0$129

TalkWorks PRO 2.0

Give your small business a professional voice

SYMANTEC.

TalkWorks PRO 2.0 from Symantec brings professional voice and fax messaging to home offices and very small businesses. Its integrated capabilities keep you in touch with your customers 24 hours a day.
Offer fax-on-demand to provide your customers with information at any time, and use the completely integrated faxing capabilities of WinFax PRO 9.0, the leading fax software from Symantec.



With TalkWorks Pro 2.0

- Set up separate mailboxes for employees, fax on demand, and other purposes.
- Get remote notification when a voice or fax message arrives
- Track faxes and voice calls
- TalkWorks PRO 2.0 even supports Caller ID*

*Caller ID service from telephone service provider and caller ID-capable modem required for some features.

SYM193 TalkWorks PRO 2.0$219

New York 2000 Win a trip!



Receive a $10 rebate on Norton Antivirus and Norton 2000

or

$20 rebate on WinFax Pro and Norton SystemWorks

&

Enter the draw to win a trip for 2 to New York to witness the turn of the century at the Millennium Hotel, Times Square

5 x Runner Up Prizes - Family Dinner at the Hard Rock Café

Promotion ends May 15th, 1999 and is not valid in conjuction with any other offer. Call for details.

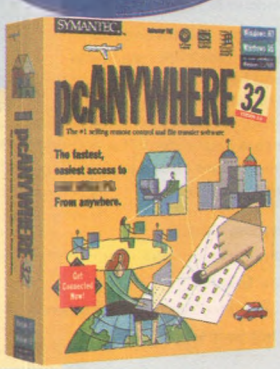
pcAnywhere™ 8.0

Easy remote access to PCs from anywhere, anytime!

SYMANTEC.

pcAnywhere 32 for Windows 95 and Windows NT is the fastest, easiest way to remotely access PCs, applications, and information from a home or office PC or network. Make quick, easy connections via modem, network, or the Internet to check e-mail, remotely support clients, download files, or simply run remote applications. Expanded Internet support, with SmartList and advanced security options, allows you to easily and safely access your PC while saving on long-distance phone charges.

Saves you money on long-distance calls!



Features

- Enhanced performance – 20% faster than previous versions, to increase productivity and minimise connection costs.
- AutoXfer – Automatic file transfer and synchronisation quickly and easily provides you with the most current version of remote files
- ColorScale – Improves screen refresh rates so you can work faster
- SpeedSend – Transfer only the parts of the files that have changed. Fast.
- Optimised desktop – Unique speed options disable host wallpaper, screen savers and full window dragging, for faster remote control.

EDUCATIONAL pricing AVAILABLE

SYM170 pcAnywhere V8.0$199

ACT!™ 4.0

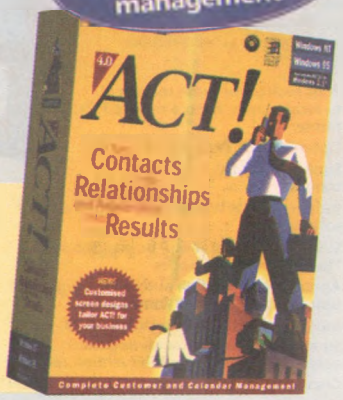
Get ACT! Get Results!

SYMANTEC.

Nobody knows your customers better than you do. The trick is remembering the right things about them at precisely the right time. ACT!™ 4.0 puts the information you need within easy reach - phone numbers addresses, order history, even invoice dates.

Complete customer & calendar management

- Leverage the Internet
- Stay connected online
- Become a genius with details
- Manage every day more efficiently



Features

- Now includes business templates for major business across Australia
- Flexible customer database - Get started right away with 70 preset user fields
- Customise the database with your own fields, custom screens and on-line forms
- Work in form or list view
- Attach files, such as spreadsheets and documents, to your contacts

SYM179 ACT! 4.0$149

All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

For the cost of a local call Orderline 1300 300 003 or 02 9700 8800

Sales Lines Open 9am 'til 6pm Monday to Friday and 10am 'til 3pm Saturday.

FIND IT CHEAPER? CALL US - WE WON'T BE BEATEN!*

*See page 48 for Price Pledge

Norton AntiVirus 5.0 Gold Edition

Norton AntiVirus™ from Symantec is the #1 anti-virus software in the world.

SYMANTEC

New features in version 5.0 let you quarantine infected files, easily get help with viruses directly from Symantec researchers, and it automatically protects you against viruses as well as malicious ActiveX and Java applets.



- **Quarantine an infected file**, and it's safe to store on your computer without fear of spreading the virus. The new Scan and Deliver wizard makes it easy to send quarantined and other suspicious files to Symantec for evaluation. The virus experts at the Symantec AntiVirus Research Center (SARC) will reply swiftly with helpful advice and any needed anti-virus definitions.
- **With version 5.0**, the software can also detect dangerous forms of ActiveX code, Java applets, and Trojan horses, giving you the industry's most complete protection against malicious code.
- **Bloodhound technology** uses advanced heuristic logic to "sniff out" and eliminate new viruses even without updated virus definitions.

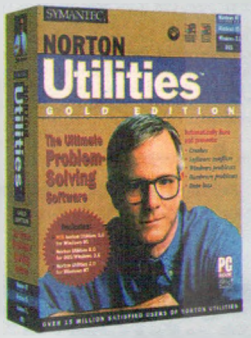
As always, Norton AntiVirus can run constantly in the background to keep your computer safe from viruses that might come in from e-mail attachments, Internet downloads, floppy diskettes, software CDs, or a network. And it can be scheduled to automatically retrieve new anti-virus definitions from Symantec as often as once a week.

NOR090 Norton AntiVirus Gold v5 **$85**

Norton Utilities Gold Edition

Unrivaled problem solving power. Unrivaled Control

Proving again there's no substitute for experience, now Norton introduces the most powerful set of utilities ever created.



- The #1 problem-solving software for over fifteen years
- The industry leader in detecting, repairing and preventing major and minor computer problems
- Optimises your computer to run at peak efficiency
- Detects Windows problems in the background and provides intelligent repair
- Prevent crashes and screen freezes three times as effectively as any competing product
- Detects viruses and repairs infected files
- Lets you customise operations, or set Norton Utilities to work continuously
- Downloads the latest application patches and drivers over the Internet.

NOR077 Norton Utilities Gold Edition **$115**

Norton CrashGuard 4.0

Don't risk losing important documents and hours of work! Norton CrashGuard 4.0 gives you more power to save your work from crashes. It stops crashes from becoming major disasters by helping you save your open documents and get back to work quickly. In fact, you can usually resume your work without rebooting your system. The Crash Assistant feature guides you through each crash situation step by step - even offering multiple recovery options to maximise your chances of successfully saving your work. There's no better software than Norton CrashGuard for recovering from application crashes, application freezes and system crashes.

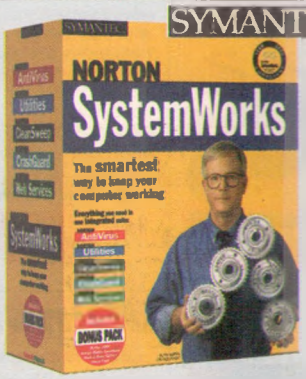


SYM199 Norton CrashGuard 4... **$39**

Plus $30 Cash back with NORTON System Works

Call for details

* limited offer, conditions apply. Not valid in conjunction with any other offer.



Norton System Works™ 1.1

Norton SystemWorks™ is the first fully integrated, comprehensive utility suite, comprised of five award-winning Symantec products, plus a Bonus Pack. These state-of-the-art products work together to both fix and prevent system problems.

- **Norton AntiVirus™ 5.0** – offers the worlds most popular and most powerful anti-virus capabilities – including the ability to isolate infected files before they can damage your system.
- **Norton Utilities™ 3.0** – is the industry leader in detecting, repairing, and preventing hardware and software problems. It also optimises your computer to run at peak efficiency.
- **Norton CleanSweep™ 4.5** – recovers disk space by safely and completely removing unnecessary programs and files.
- **Norton CrashGuard™ 4.0** – automatically protects against system crashes and screen freezes. It not only minimises the chances of a crash, but in most cases lets you save your work if a crash occurs.
- **Norton Web Services™** – is an online service that keeps your system running smoothly by giving you easy access to the latest virus definitions, hardware drivers, and software updates.

MICROSOFT WINDOWS COMPATIBLE

The Bonus Pack includes:

- **Norton 2000™** – to make your PC and data "millennium ready".
- **Norton Mobile Essentials™** – resolves laptop connection problems.
- **WinFax™ Basic Edition** sends and receives faxes directly from your computer.
- **Symantec Visual Page™** – a web development tool.

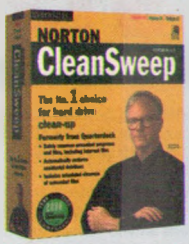
YEAR 2000 COMPLIANT

NOR093 Norton SystemWorks 1.1 **$169**

Norton Cleansweep 4.5

NEW PRODUCT

Clean up your hard drive with the award-winning leader: Norton CleanSweep™ from Symantec. It improves your PC's performance by completely and safely removing unneeded items while protecting vital programs, files, and Windows settings. It even gets rid of extraneous cookies, ActiveX controls, plug-ins, downloaded programs, and other Internet files. A graphical interface and intuitive wizards make Norton CleanSweep as easy to use as it is thorough. In short, Norton CleanSweep is the quickest, easiest, safest way to recover hard drive space. Don't take risks with your computer-trust the Norton name for safe, complete hard drive cleanup.

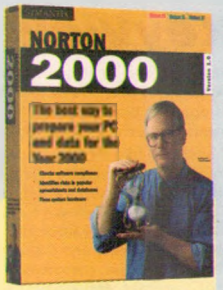


NOR095 Norton Cleansweep 4.5 **$65**

Norton 2000

Prevent damage to your company's desktop PCs and data from Year 2000 problems.

In assessing Year 2000 exposure, don't forget that date anomalies in desktop PCs or applications can cause local problems or spread to the mainframe. Norton 2000 gives you an easy, reliable, and flexible way to address Year 2000 anomalies at the desktop level, in applications, and in system clocks and BIOS.



Features:

- Finds Y2K anomalies in desktop applications.
- Tests and fixes system BIOS and clocks.
- Automatically updates database of Y2K compliant software.
- Supports central installation and administration.
- Provides flexible scanning/reporting options.

NOR086 Norton 2000 **$62**

SYMANTEC VALUE LICENCE PROGRAM SAVE TIME AND MONEY

SYMANTEC. VALUE LICENCE PROGRAM

The Symantec Value Licence Program has been designed to make purchasing Symantec products quicker and cheaper. Just one phone call to our sales team could get you significant discounts for your organisation. Reordering is then a simple case of calling us and quoting the number from your certificate.

Designed for companies and organisations ordering more than 10 licenses, the Symantec Value License Program ensures you get the discounts you deserve.

YES ! WE SELL NORTON GHOST Call for details



All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

INTERNATIONAL SOFTWARE WAREHOUSE Pty. Ltd.

EVERYTHING FOR YOUR PC - DELIVERED NATIONWIDE!



KENS KORNER

This month I have heaps of fantastic bargains waiting to be snapped up. Some are previous versions, others have damaged packaging, but ALL carry full guarantees and warranties. Remember, there are limited stocks so call quickly.

AUS118 Ramgate $15

MAG008 Magtron 15" Monitor (5 only) $249

KEN081 Rapid Remote v1.1 (10 only) $19

KIS033 Rescue Me Win95 $10

MCA029 McAfee Web Crypto v1 $10

There are many more that I can't fit in here. For a full listing, check out my section on our website at www.iswh.com.au

See you next month!

Ken

Internet CommSuite

Internet ComSuites leading edge technology seamlessly integrating all aspects of Internet Communications in one, easy-to-use interface, Internet CommSuite's leading-edge technology makes it possible for you to communicate for FREE over the Internet!

Talk over the Internet for FREE and, if you have a camera connected to your system, you can have full-motion video sessions with others on-line for FREE. Windows documents to any fax machine in the world and completely eliminate long distance charges.

* Limited offer - ends may 31st. Call for details



$80 cashback when purchased with a modem*

Stock Code: SMS001

$95

McAfee Office

One solution for every PC problem!Office is the latest addition to the McAfee family of products. Designed to keep your PC running at optimum performance McAfee Office offers the PC user everything they could possibly need to maintain a healthy system. With full versions of VirusScan 4, First Aid 98, Nuts & Bolts 98, Guard Dog, Uninstaller, Year 2000 Toolbox, Oil Change, and Hurricane - McAfee Office offers over $600.00 worth of value for only $169.00.



Stock Code:MCA075

$169

System Commander Deluxe

Now you no longer have to fear losing valuable time and data while working out the kinks with your new operating system (OS). Not only does System Commander Deluxe give you all the advantages of System Commander, but it also includes these exclusive features:

- OS Wizard creates the best configuration for your new operating system.
- Creates and resizes partitions with no risk too your data, automatically!
- Universal mouse support



Stock Code: VCO002

$125

Dr Solomons Anti-Virus

Dr Solomon's Anti-Virus is the only anti-virus product available in Australia that is able to automatically detect and eliminate over 17,000+ known viruses that are out there, ready to attack your PC.

With over 3 million users worldwide. 24 hour, 7 day technical support and on-line upgrades for killing new viruses it's no wonder Dr Solomon's is trusted by over 3 million people worldwide.

It's the world's most advanced, trusted and widely used anti-virus program.

**Computer viruses are increasing at the rate of 300+ per month.*

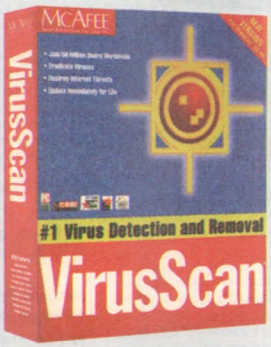


Stock Code: NIT005

$79

VirusScan 4.0

Detect and Destroy ALL viruses. McAfee Macro Hunter technology safeguards your PC from all virus types and from all potential sources. Virus Scan stops destructive Active X and Java applets often downloaded from the Internet. It scans all your e-mail attachments right inside your mailbox, so viruses never reach your system. SecureCast prepares you by using Internet "Push" technology to deliver virus updates directly to your desktop, automatically for the life of the product.



Stock Code: MCA070

$69

UnInstaller Deluxe

Create More Disk Space ..Automatically!

No matter how much hard disk space you have, it never seems to be enough. You have old programs, files downloaded from the Internet, files left behind from programs - all adding up to clutter up your PC. With UnInstaller, you can get rid of the junk files and programs on your PC, safely and thoroughly. The result is a cleaner, smoother-running hard drive!



Stock Code: UNI009

$85

KeyView Pro

Have you ever been sent an email attachment that you haven't been able to open, or one that stretches into 250 pages of nothing? Frustrating, isn't it?

If anything like this has happened to you, then you need KeyView Pro. It's like having 200 applications in one! KeyView Pro will allow you to instantly view and print spreadsheets, documents, video and sound clips, photos, graphics, compressed files, MAC, Internet, and email files, and many more.

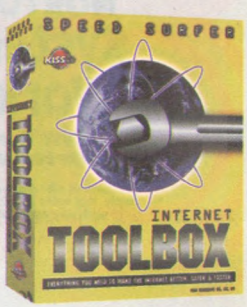


Stock Code: KIS042

$59

Speed Surfer Internet Toolbox

Are your valuable computer files protected from dangerous Internet hackers, or from prying eyes when you send them across the Net? Do you want people to be able to track your movements on the Web? If your answer is no, then Speed Surfer's Internet Toolbox is the perfect solution! It's a one-stop quick-fix to all of your security needs. Plus asy one-button access makes browsing a breeze - no more complicated routines to log on to your favourite Web site.



Stock Code: KIS044

$55

All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

For the cost of a local call **Orderline 1300 300 003 or 02 9700 8800**

Sales Lines Open 9am 'til 6pm Monday to Friday and 10am 'til 3pm Saturday.

VISA MasterCard

FIND IT CHEAPER? CALL US - WE WON'T BE BEATEN!*

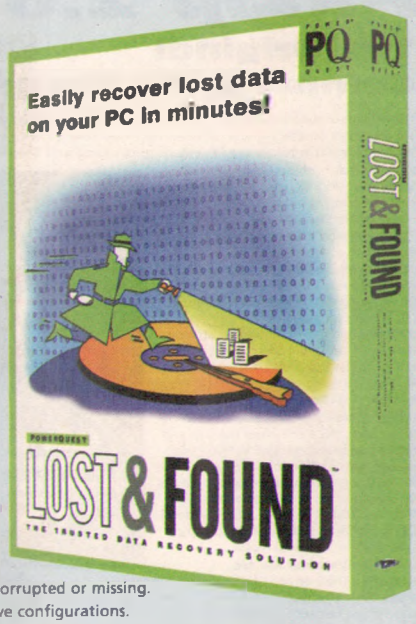
*See page 48 for Price Pledge

Lost & Found

Automatically recover and restore lost data!

NEW PRODUCT

Your data is priceless. Whether it be the last five years of your financial records or Grandma Brown's favourite recipes, if anything happens to them - like deletion, virus infection, hardware failure - replacement would be difficult or even impossible. Fortunately, with Lost & Found from PowerQuest, restoring lost data is just a few keystrokes away. Rather than spending thousands of dollars to send your hard drive to a data recovery centre, Lost & Found lets you automatically recover and restore data after accidental (or even intentional) data loss, or from corrupted media caused by a disk crash or logical system failure. Our patent-pending technology will even recover data if the partition has been reformatted or if the FAT tables have been destroyed! In fact, as long as your disk is still spinning, Lost & Found can locate and recover almost any file, anywhere on your disk.



What makes Lost & Found an easier, more effective data recovery system?

Unlike other data repair and recovery software solutions, Lost & Found:

- Does not need to be installed prior to the recovery of lost or corrupted files.
- Does not alter, write to or attempt to repair critical sectors on the damaged disk, increasing the chances of a successful data recovery.
- Recovers your files even after reformatting, as long as you have not written over them.
- Performs a disk analysis and reports the odds of recovery via colour coding. Allows you to save data to a network drive.
- Offers exceptional data error handling, allowing you to recover files from disks that have suffered head crashes or other damage.
- Recovers lost or damaged data even if the critical sectors, such as the boot sector or root directory, are corrupted or missing.
- Recovers data from both FAT16 and FAT32 partitions. Works with all possible IDE, EIDE and SCSI disk-drive configurations.

Common causes of data loss on PCs:

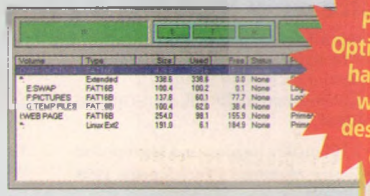
Software		Hardware	
Buggy software	Installation glitches	Electromechanical failure	Circuit failure
Viruses	Hackers	Head crash	CPU failure
Operator error	Backup software failure	Controller malfunction	Environmental factors
Software failure	Deletes	Power failure	Media damage
Application conflicts		Tape-drive failure	

POW041

$89

PartitionMagic 4.0

Reclaim up to 40% of your hard disk & organise your hard drive!



PRESTO! Optimise your hard drive without destroying data

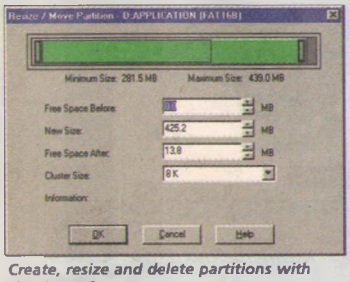


Reclaim Wasted Disk Space

Everyone wants to get the most they can out of their hard disk. But, up to 40 percent of your hard disk may be totally wasted due to inefficient storage methods. PartitionMagic 4.0 increases your usable disk space by shrinking large FAT partitions and restructuring cluster sizes to reclaim up to hundreds of megabytes of lost disk space.

Safely Run Multiple OS's

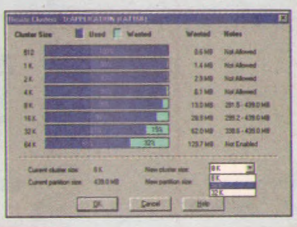
PartitionMagic 4.0 makes it easy to run multiple operating systems on the same machine without compatibility problems. Explore the new world of Windows 95,98 or NT while still relying on the security of your current operating system. And PartitionMagic 4.0 includes BootMagic from IBM, making it easy to select an operating system every time you boot your computer.



Create, resize and delete partitions with the drag of a mouse.

Organise and Protect Data

Create a physically separate partition for your valuable data files to protect them from potentially unstable applications. This simplifies backups, especially to devices like ZIP™ drives. And with the transport feature of Uninstaller™, PartitionMagic 4.0 lets you easily move applications from one partition to another with their files and operating system settings in place.



PC SIEGE — PC PROFESSIONEL — INNOVATION — DES ANNÉES 95/96 — POWERQUEST Partition Magic

POWER PQ QUEST

Designed for Microsoft Windows 95

POW034 PartitionMagic 4.0

$99

POW033 PartitionMagic 4.0 Upgrade

$59

WHAT THE PRESS SAY..

"Unique, dazzling and indispensable, PartitionMagic is a must have product in an era of larger and larger hard disks"

PC Magazine

PartitionMagic HARD-DISK PARTITIONING ON THE FLY

PPPC

Now with BootMagic included!

MasterClips 35,000

Unbeatable value for money, this two CD program contains 33,000 high quality vector images and more - for only 19.95!



- 33,000 fully scalable vector images
- 1,000 stunning photos
- 1,000 incredible True Type fonts
- 150 of the most popular sound effects
- Full library of video and animation clips

And it's all at your fingertips with MasterClips MediaPaq Browser. The browser's extensive import capabilities (up to 36 formats supported) allows you to preview, view, file manipulate, listen to or watch any image, font, photo, video clip, sound effect or animation on electronic media with ease.

IMS016 **$19.95**

Matthew



All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

Orderline 1300 300 003 or 02 9700 8800 Order by fax 02 9700 8801

Enquiries 02 9700 8800 Internet site www.iswh.com.au

13 Bradford Estate
10 Bradford St
Alexandria
Sydney 2015

INTERNATIONAL SOFTWARE WAREHOUSE Pty. Ltd.

EVERYTHING FOR YOUR PC - DELIVERED NATIONWIDE!

Category Index

Accounts 12,13
Business 16,17,18
CAD 24,25
Communication 26,27,28
Digital Cameras 43
Graphics Cards 35,40,41,42
Graphics/DTP Software 18-22
Microsoft 3,10,11
Modems 46,47
Networking 44,45
Monitors 40
Notebooks 4
OCR 8
PCs 5
Printers 6,7
Reference/ Training 23
Scanners 8,9
Storage 36-39
Tape Backup 38
UPS 44
Utilities 29-32
Video Capture 42
Voice Recognition 14,15
Y2K 33,34

PKZip 2.6

The Original Compression Program

PC MAGAZINE EDITORS' CHOICE

The growth of the Internet and the increased use of World Wide Web browsers are creating a greater need to compress data files. Saving disk space and saving on-line phone charges are big benefits of compressing data files with PKZIP.

PKZip 2.6 has been determined by PC Magazine Editor's Choice (03/98), as the best compression utility. "All the programs reviewed here will get the job done, but PKZIP delivered the best combinations of features".

PKZIP compresses files on average 50-70% with many large text and database files compressing well over 90%. PKZIP's simple point-and-click interface lets you easily compress one file, or all files on an entire hard drive, and store them in the .ZIP file. PKZip 2.6 has the added feature of being able to create self-extracting files that span multiple diskettes.

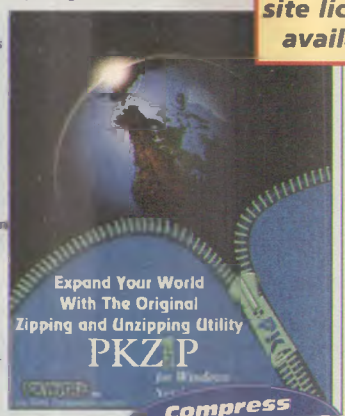
Using PKWARE patented compression technology, PKZIP combines the best and fastest compression found in PKZIP with ease-of-use of a Windows program. PKZIP for Windows is compatible with Windows 95, Windows NT, Windows 3.1 and with .ZIP files created on other PKZIP platforms. Other platforms include DOS, OS/2 and OpenVMS for VAX and Alpha.

Use PKZIP Whenever You Are:

At Home - The Internet contains many .ZIP files you can access through a World Wide Web browser. PKZIP also lets you archive files such as the digitized family photo album or annual budget in .ZIP files, saving you space on your hard drive.

On the Road - Use .ZIP files when sending email, storing presentations, or transferring files between your office PC and your laptop.

At the Office - Network and system administrators save space on their servers and reduce traffic over the Intranet or corporate network using .ZIP files.



Compress your files by as much as 90%.

Corporate site licences available

WIN109 PKZip v2.6 **$65**

WinZip 7.0

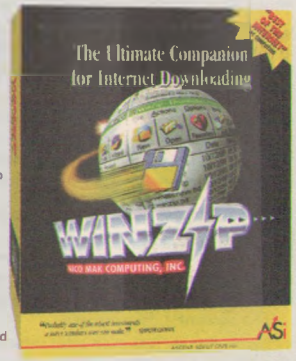
The ultimate Companion for Internet Downloading

"Probably one of the wisest investments a savvy windows user can make"

WinZip brings you the convenience of Windows to the use of ZIP files without requiring PKZIP and PKUNZIP. It features an intuitive point-and-click drag-and-drop interface for viewing, running, extracting, adding, deleting, and testing files ZIP, LZH, ARJ, and ARC files.

The Zip Advantage:
Zipping safely compresses the data in your files, so that your files occupy less space. This allows you to save moretime by speeding up file transfers. "Zipping reduces the size of files, while "Unzipping" restores the files to their original form, completely unchanged.

Internet Surfers:
WinZip makes it ieasy for you to access almost all of the compressed files you download from the Internet. WinZip features built-in support for Zip, TAR, gzip, Unix Compress, UUENCODE, BinHex, and MIME files.



Key Features

- Tight integration with the Windows 95/98/NT shell
- Drag & Drop to or from the explorer, or ZIP & UNZIP without leaving the Explorer
- Drop files on a printer to print
- With the easy to use tool bar you have the convenience of Windows when Zipping
- Built-in PKZIP-compatible ZIP and UNZIP (PKZIP and PKUNZIP are not required)
- Built-in support for the popular Internet file format TAR, gzip, Unix compress, Uuencode, Xxencoder, HinHex, and MIME
- Simplify file distribution by making files that unzip themselves
- Optional WinZip Wizard Interface
- Works with ARJ, ARC, and LZH files
- Optional virus scanning support
- Supports Windows 3.1, 95, and NT
- 32 and 16 Bit versions included.

The Archive Utility for Windows

WIN119 WinZip 7.0 **$65**

COREL® WordPerfect Suite 8 with Dragon NaturallySpeaking

The World-Class Office Suite now includes leading Speech Recognition Technology

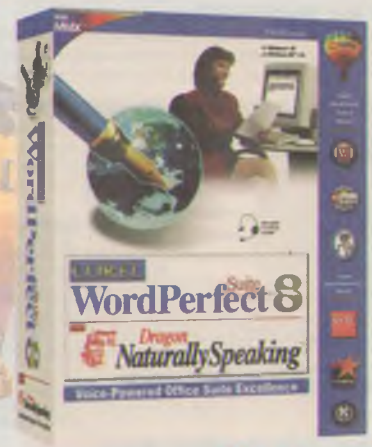
Corel WordPerfect Suite 8 with Dragon NaturallySpeaking brings together two award-winning products to give you powerful office software, the latest Internet technology and speech-enabled word processing. Because Dragon NaturallySpeaking is fully integrated into Corel WordPerfect 8, you can create documents just by speaking to your computer!

Technology Upgrade Guarantee*

- **Slide Show**
- **Personal Information Manager**
- **Word Processor**
- **SpreadSheet**

Features:

- Corel WordPerfect 8
- Corel Quattro Pro 8
- Corel Presentations 8
- CorelCENTRAL 8 with fully integrated Netscape Communicator 4.04 &
- Dragon NaturallySpeaking Personal Edition 2.0
- High quality Headset and Microphone
- Grolier Multimedia Encyclopedia 1998 version
- Corel Photo House 2
- Envoy Viewer 7
- Corel Software Developer's Kit
- Corel Barista Printer Driver
- Quick View Plus



ALSO AVAILABLE:

Corel WordPerfect 8 for Linux
Personal Edition

Features

- Intuitive word processing
- Integrated Internet Publisher
- 90+ Spreadsheet Functions in Tables
- Advanced Drawing and Charting Capabilites

Plus

- Netscape Navigator 3.02
- 5,000+ clipart images
- 200 photos
- 187 textures
- 130 fonts
- 90+ ExpressDocs
- Online User Guide for X Window Systems

COR560 Corel WordPerfect 8 for Linux Personal Edition **$89**

COR527 Corel WordPerfect Suite 8 U/G & Dragon Naturally Speaking **$235**

*Applies only to CorelDRAW 8, Corel Photo-Paint 8 and WordPerfect Suite 8. Conditions apply, offer available for limited time only. Call for full details.

All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

For the cost of a local call **Orderline 1300 300 003 or 02 9700 8800**

Sales Lines Open 9am 'til 6pm Monday to Friday and 10am 'til 3pm Saturday.

FIND IT CHEAPER? CALL US - WE WON'T BE BEATEN!*

*See page 48 for Price Pledge

So you know what the millennium bug is. What next?

The Millennium Buster range has been developed to meet the standards as defined by the British Standards Institute Code of Year 2000 Conformity (DISC PD 2000-1). This code has been adopted word for word by Standards Australia and Standards New Zealand (SAA/SNZ MP77:1998), so you can buy with confidence.

TEST



Why pay for a Year 2000 fix if you don't need one? Use the Millennium Buster 1 test program to see if your PC is Year 2000 compliant. The Millennium Buster 1 test program will check ALL of a PCs' time keeping components, including:

- Operating System Clock
- BIOS Chip
- Real Time Clock (RTC) Chip

It will test for Year 2000 compliance as well as testing for leap year recognition. At only $29, can you afford not to test your PC?

So cleverly written it fits on one floppy disk!

Single User MIL100 **$29**

Multi User **Call for pricing**

FIX



If you have performed the Millennium Buster 1 test, and have found that you need a software fix, then Millennium Buster 2 is the answer. Again, Millennium Buster 2 works with ALL PC time keeping components. There are very few programs that work with a computers' Real Time Clock. Millennium Buster 2 does, as well as working with leap year recognition. Installing new software? No problem. With the in built Re-Test option, you can check your PC as often as you like.

Single User MIL101 **$99**

Multi User **Call for pricing**

CORPORATE



MBNET - the Millennium Buster Client Server program for experienced network administrators. MBNet contains both the test and the fix, which can be run on all workstations from the server. For more information, please call our Major Accounts team on 1 300 300 003.

5 User Client Server MIL102 **$199**

Call for extra user details

NEW HARDWARE FIX!

What if you want a hardware fix to make you Year 2000 compliant? You could spend $3000 on a new PC, but it may not be compliant. You could spend $700 on a new motherboard and processor, but again it does not guarantee compliancy, and also means that you will have to re-install all your hardware, drivers etc. Or you could spend $595 on the Millennium Buster Year 2000 Enhancement Card.

The Year 2000 PC Enhancement Card is a highly sophisticated card that utilises the latest Dallas Semiconductor fully Year 2000 compliant Clock Chip. An ISA card that installs in most PCs in approximately 10 minutes, it is recommended for use in network servers and mission critical PCs.

MIL103 Millennium Buster PC Enhancement Card **$595**

Call for volume pricing

ATTENTION I.T. MANAGERS: Worried about the millennium bug and your network? Call our major accounts team on 1 300 300 003. Millennium Buster is used by many Blue Chip organisations.

YEAR 2000 - AN OPEN LETTER TO OUR VALUED CUSTOMERS

If you're confused, I'm not surprised. There is so much hype surrounding the year 2000 problem that it's often difficult to navigate your way to an honest conclusion. Briefly, let's start with what it's not: it's not a hoax. It's not being made up by the computer industry to sell more computers and software, and it's not exclusively the computer industry's problem. And it is certainly not going to go away.

As one of the leading mail order suppliers of PC Software and peripherals in both Australia and the UK, International Software Warehouse is committed to working with our customers in addressing the challenge of the Year 2000 millennium date change.

The challenge relates not only to shrink wrap software packages that are reliant on 4 digit short cut dates, but to the underlying IBM PC compatible hardware Bios (Real Time Clock CMOS) and Operating System compliance.

International Software Warehouse is currently working with its suppliers in following the guidelines set by Standards Australia and Standards New Zealand (SAA/SNZ MP77:1998), who have adopted the British Standard Institute's Document DISC PD 2000-1 verbatim. This code dictates that the onus is upon the manufacturers of computer software to ensure that the programs are compliant.

As part of our commitment to providing our customers with the very highest level of service, we have produced a free brochure explaining the implications of the Year 2000 challenge to small and large businesses alike. In the brochure you will find the necessary advice, tools, products and services with which your organisation can effectively implement Year 2000 risk assessment and compliance before December 1999. For a copy of the brochure, call our Major Accounts team on 1 300 300 003.

Phil Webb

Phil Webb
Managing Director
International Software Warehouse



Free brochure on the implications of the Year 2000 Challenge, and how to deal with them.

Kodak CD-R Discs **$2.70** each

Traxdata/

Princo CD-RW Discs **$9.50** each

Bulk pricing (100 or more) available. Call our sales team for details.

Sanaz



All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

Orderline 1300 300 003 or 02 9700 8800 Order by fax 02 9700 8801

Enquiries 02 9700 8800 Internet site www.iswh.com.au

14 Bradford Estate
10 Bradford St
Alexandria
Sydney 2015

INTERNATIONAL SOFTWARE WAREHOUSE Pty. Ltd.

EVERYTHING FOR YOUR PC - DELIVERED NATIONWIDE!

WEBSITE

We have a new website address:

www.iswh.com.au

If you have visited our website before, we invite you to take another look. You will find it has changed quite dramatically. More information, more products and more importantly, more great deals! Thousands of products, all at the best prices. Whether you are looking for information, or want to place an order, make sure you pay us a visit first!

CHECK 2000 PC Deluxe



The Ultimate tool for beating the Millennium Bug!

Check 2000 PC Deluxe is the only integrated year 2000 testing tool that addresses all five "at-risk" layers of your PC. You can correct the BIOS, test the operating system and software programs, scan your data files, and flag data importing issues.

CHECK 2000 PC Deluxe gives you more:

- ✔ Finds and corrects year 2000 hardware (BIOS) problems on the spot
- ✔ Flags problems in software programs, includes the world's largest database of remediation advice
- ✔ Lets you check new data from e-mail, internet, disks, CDs and other outside sources as often as you like
- ✔ Scans all the way down to individual cells in spreadsheets, databases, and other data files
- ✔ Helps you prioritize software and data problems for timely repair

Greenwich Mean Time

STOCKCODE: GRE002

$85

"Today CHECK 2000 is established as the standard by which other year 2000 products are measured" *Microsoft Y2K Resource Centre.*

Greenwich Mean Time

1 Test and Correct BIOS

A simple pass/fail screen tells you if your BIOS passes or fails the critical date tests. Then Check 2000 PC Deluxe will correct the problems for you in 98% of BIOS types.

2 Check your operating System

Check 2000 will test your operating system, identify any 2-digit settings, and then recommend the changes you need to make. We check all of the popular operating systems, including: Win95/98, NT 4.0.

3 Analyse Software Programs

Every application treats date-dependent data a little differently.
Check 2000 PC Deluxe will do an inventory on your application programs - and show you which programs are most at risk (usually it's spreadsheets, databases, and schedulers). Year 2000 advice is provided on over 5,000 software programs. The knowledge base built into Check 2000 PC Deluxe recognises over 20,000 programs.

4 Pinpoint and Prevent Data Problems

Drill all the way down to the individual cells in spreadsheets- and other data files-that could cause problems. Correct the data as it's revealed to you by Check 2000, without switching between software programs. You can run the Data Scanner at any time, to continually reveal any new date-dependent data that comes into your PC.

5 Keep Checking Imported Data

Check 2000 PC Deluxe identifies software programs that import and export data. Then Data Scanner finds date-dependent data so you can correct it.

CHECK 2000 PC



What CHECK 2000 PC does for you:

- Finds and eliminates hardware date problems in 98% of BIOS types by correcting the PC BIOS system clock.
- Tells you how your data and software will be affected by the year 2000 changeover.
- Gives advice on avoiding problems inherent in many thousands of popular software programs.
- Helps you prioritise software and data problems for timely repair.
- Lets you run the program as many times as you like to keep monitoring your your PC's year 2000 status
- Provides free technical support for 90 days.
- Compatible with Win 3.1/3.11, Win 95, Win NT 3.x, Win NT 4.0.

- Flags and fixes year 2000 PC problems
- Fixes your hardware
- Analyses your software
- Provides detailed advice

GRE001

$75

CHECK 2000 Client Server

Scans your network to find and fix Year 2000 PC problems

Only Check 2000 Client Server does all this and more...

- Performs a detailed hardware and software audit of your network
- Scans spreadsheets and databases for year 2000 problems, drilling down to individual cells
- Finds and Fixes critical (BIOS) problems on your network
- Collates network data into one common database
- Supplies a top-down view of your year 2000 readiness
- Provides detailed reports for all levels of your enterprise, form management to technical
- Prioritizes software and data problems for timely repair
- Offers ongoing risk assessment to maintain your protection, as you change and add to your network.

The client server software will run on the following operating systems: DOS, Win 3.1x (including for workgroups), Win 95 and Win NT 4.0



GRE005

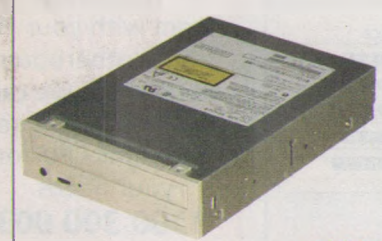
$399

All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

For the cost of a local call! **Orderline 1300 300 003 or 02 9700 8800**

Sales Lines Open 9am 'til 6pm Monday to Friday and 10am 'til 3pm Saturday.

DON'T FORGET TO ASK FOR YOUR FREE GIFT

	VALUE	EXPERT	PROFESSIONAL
GRAPHICS CARD	**Graphics Blaster Exxtreme**  Actual product may differ from illustration. A great budget 4Mb graphics card that offers superb 2D and 3D acceleration. The card comes with 4Mb SGRAM and features a host of 2D and 3D features, including 100% hardware texture mapping. A good spec, great value low price card. Box shown for illustration purposes only Limited stocks. AGP only. CRE050 $79	**3D Blaster Banshee**  Awesome resolutions, rock solid refresh rates and stunning visual quality. Complete 2D/3D graphics solution based on the Voodoo Banshee chipset. With a full 128 bit graphics core and 16Mb of high speed SDRAM, you can see why the 3D Blaster Banshee is one of the most popular cards for graphic intensive applications and games. CRE051 $265	**ATI Rage Fury 32Mb AGP**  The new ATI Rage fury is powered by ATI's Rage 128 graphics technology, with an astounding 32Mb of memory. Ideal for serious game players and for graphics intensive applications such as 3D CAD, this card also feature hardware DVD for full screen DVD playback. For full specifications, check out our website at www.iswh.com.au Things never looked so good! ATI030 $call
SOUND CARDS	**Soundblaster AWE64**  The AWE64 Value gives excellent performance at a low low price. With 64 voice true instrument reproduction, EMU 8000 advanced wave effects synthesiser and 3D positional audio, this a superb card to get you started. Box shown for illustration purposes only CRE030 $79	**SoundBlaster Live! Value**  Interested in a powerful audio/gaming experience? With the Sound Blaster Live! Value, the home audio user, gamer or multimedia enthusiast can hear Hollywood-quality audio and amazing special effects on any audio source. CRE053 $259	**SoundBlaster Live!**  Sound Blaster Live! introduces a new dimension of audio by including features and performance surpassing professional Hollywood-quality audio equipment. Sound Blaster Live! incorporates the superior surround-sound rendering of Environmental Audio(tm) to create sound so real it has to be Live! CRE048 $479
CD DRIVERS	**40x CD-ROM Drive** Unbelievable. A blistering 40x CD drive (6000Kb/sec data transfer rate) for under $100! This drive has a multi read function - it can read CD-RW media as well. Fantastic value at only $99.  OFF006 $99	**Sony CD ReWriter** Supporting 24x read, 4x write and 2x re write speeds, this kit contains everything you need to get up and running. Contains the drive, authoring software, a blank CD-R and CD-RW plus a simple step by step installation guide.  SONY45 $629	**AOpen 6x DVD Drive (DVD9632)** Experience tomorrows' technology today with this 6x DVD ROM drive from AOpen. Supporting DVD, CD (up t o32x), CD-R and CD-RW, you can use this drive to watch the latest movies, play the latest games or listen to your music CDs. For technical specs please check out our website at www.iswh.com.au  OFF008 $399



BODYWORKS v6

The complete multimedia reference and learning tool for the human body.

Whether you are looking for an in depth answer to a question, or just want to learn more about the human body - Bodyworks is the most informative and educational way to do it.

Includes:

- More than 80 rotating 3D models with audio
- Powerful search capabilities for over 400 000 words of text
- Web site directory and one button Internet access to current medical information

SPECIAL OFFER!

ONLY

$19!!

BOD010

Luke



All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

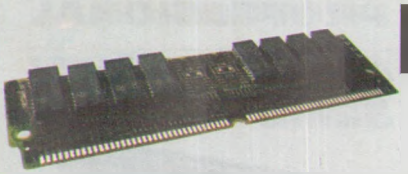
INTERNATIONAL SOFTWARE WAREHOUSE Pty. Ltd.

EVERYTHING FOR YOUR PC - DELIVERED NATIONWIDE!

Kodak CD-R Discs $2.70 each Traxdata/

Princo CD-RW Discs $9.50 each

Bulk pricing (100 or more) available. Call our sales team for details. Save money at



Memory Pricing

PC100 SDRAM DIMM (168 pin)

Size	Access Time	Price	Stock Code
32Mb	7ns	$89	MEM100
64Mb	7ns	$189	MEM101
128Mb	7ns	$379	MEM102

PC100 ECC SDRAM DIMM (168 pin)

Size	Access Time	Price	Stock Code
128Mb	7ns	$389	MEM103

SDRAM DIMM (168 pin)

Size	Access Time	Price	Stock Code
32Mb	10ns	$89	MEM104
64Mb	10ns	$179	MEM105
128Mb	10ns	$369	MEM106

GETTING THE RIGHT TYPE OF MEMORY IS IMPORTANT!!

If you have a BX motherboard, you need PC100 memory.

If you have an LX motherboard, you can use either SDRAM or PC100 SDRAM. Both types of memory will work. By purchasing PC100 memory, you will future proof your memory should you decide to upgrade your motherboard, or upgrade your processor over 350MHz.

If you are buying memory for a server with a processor speed over 350MHz, use PC100 ECC SDRAM.

EDO RAM is used for older Pentium machines. Supply of EDO RAM is becoming more and more constrained, and has caused volatility in pricing. Please call our sales team for the latest pricing, or for any advice on your requirements. 1300 300 003

MEMORY PRICES ARE VOLATILE. CALL FOR LATEST PRICES.

Celeron Matrix

Chip	Stock Code	Price
Intel Celeron 300A 128Kb cache Slot 1	INT130	$149
Intel Celeron 333 128Kb cache Slot 1	INT131	$169
Intel Celeron 366 128Kb cache Slot 1	INT132	$239
Intel Celeron 400 128Kb cache Slot 1	INT133	$329
Intel Celeron 433 128kb cache Slot 1	INT134	$389
Intel Celeron 300A 128Kb cache Slot 370	INT135	$149
Intel Celeron 333 128Kb cache Slot 370	INT136	$169
Intel Celeron 366 128Kb cache Slot 370	INT137	$219
Intel Celeron 400 128Kb cache Slot 370	INT138	$299
Intel Celeron 433 128kb cache Slot 370	INT139	$379

Pentium II Matrix

Chip	Stock Code	Price
Intel Pentium II 350 512k cache	INT140	$439
Intel Pentium II 400 512k cache	INT141	$749
Intel Pentium II 450 512k cache	INT142	$1229
Intel Pentium III 450 512k cache	INT143	$939
Intel Pentium III 500 512k cache	INT144	$1369

NOT SURE WHICH CPU YOU NEED?

Don't worry, call our trained sales team with your PC and motherboard details and we can make sure you get the right CPU for your needs.

1300 300 003

CPU prices are based on the US dollar and are therefore volatile. So please call for the latest pricing as they may now be cheaper!

All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

For the cost of a local call Orderline 1300 300 003 or 02 9700 8800

Sales Lines Open 9am 'til 6pm Monday to Friday and 10am 'til 3pm Saturday.

FIND IT CHEAPER? CALL US - WE WON'T BE BEATEN!*

*See page 48 for Price Pledge

HP CD Writer Plus 7200i/7200e

Simple as a floppy, all the qualities of a CD.

FREE Software bundle valued at $500

CD-Writer Plus lets you store, organize, share and distribute information like never before. You can use versatile CD-RW media. Think of it as a high capacity, durable floppy. Write, update, erase and rewrite up to 650Mb of words, images, video and sound on a single CD up to 1000 times per sector per disc. Create permanent archives of all your critical data with the assurance that it will be secure for up to 100 years.
Or create CDS that can play in millions of CD-ROM and Audio CD players worldwide.
Read : 6x
Write: 2x
Rewrite: 2x



HPP011

$579

Software Bundle Features:

- Adobe PhotoDeluxe
- Documagi PaperMaster Live
- Digital News Photo Organiser
- Corel Print House Magic
- Symantec Norton AntiVirus
- HP SimpleTrax
- Adaptec Direct CD - drag and drop files to CD from Windows Explorer or save directly from any application
- Adaptec Easy CD Creator - Master CDs which can be read on CD-ROMs using Windows 95, Windows NT, Windows 3x, Macintosh and UNIX operating systems.
- Adaptec Easy CD Audio - Create music CDs
- Adaptec Jewel Case Designer - Create inserts and labels for CDs

SureStore

Designed for Microsoft Windows NT Windows'95

HPP012 HP Surestore CD-RW 7200e External $829
HWP252 HP CD-RW Media Single Pack $20
HPP014 HP CD-R Recordable Media 650Mb 5 Pack $19

HP CD-Writer Plus 8100i

The fastest, easiest way to make your own CDs.

FREE Software bundle valued at $300

With up to 24X read speed and up to 4X write speed, the new HP CD-Writer Plus 8100i offers unprecedented performance in CD-Recordable technology. Now, in addition to being able to create your own CDs as simply as using floppies, you can do it faster. What's more, the HP CD-Writer Plus 8100i lets you read CDs at speeds rivalling 24X CD-ROM drives. And now there's no more long waits to format your CD-RW discs. With HP fast format, formatting CD-RW takes less than five minutes, saving up to one hour or more. From start to finish, the HP CD-Writer Plus 8100i is designed for high performance.



- Use it just like a floppy - Write, update and rewrite your files thousands of times on a single 650Mb disc.
- Drag and drop files to CD or save directly to CD from any application
- Improved Performance! Read at up to 24X; Write at 4X speed; ReWrite at 2X
- World-class quality and support from Hewlett-Packard, the most trusted name in computer peripherals.

HPP031

$749

Software Bundle Features:

- **HP fast format** - Allows you to write CD-RW discs in under five minutes, saving you up to an hour of formatting.
- **Adaptec Direct CD, Easy CD Creator, Easy CD Audio, Jewel Case Designer** - Makes it easy to record data, photo, audio and video files to a CD. Allows you to copy, transport and share your CD creations with others. Design custom jewel case inserts and labels to compliment your CDs.
- **HP Disaster Recovery** - Helps you quickly restore operating systems, custom software settings, and data files on your hard drive
- **HP Simple Trax** - Helps you back up your files to CD, and then makes it easy for you to quickly locate and retrieve them. Without having to insert the CDs, you can determine which backup CD contains the file you need.

SONY 24x4x2x CD REWRITER KIT

Another great deal for April

Get the Sony CRX100 Rewriter Kit for just $649! This kit contains everything you need to get you up and running, including:

- Tray load drive
- 1 x Sony CD-R disc
- 1 x Sony CD-RW disc
- CD authoring software
- Audio cable
- User guide



SONY45

$649

A blistering 24x read speed coupled with a 4x write once speed and 2x rewrite speed makes this the total CD/CD-R/CD-RW solution.

Acer 6x2x2x CD ReWriter

This Acer 6x read, 2x write, 2x rewrite has won many awards from magazines around the world. It is a low priced, high performance, high value cd writer. Supporting various recording formats, nowhere else will you find the same excellent quality for the same great price. The kit includes the drive and CD authoring software. Another blockbuster from International Software Warehouse!



OFF007

$499

limited stocks

iomega Accessories & Media

IAZ Traveller
AUP163 $45

ZIP Wallet (Holds 6 Disks)
IOM112 $29



ZIP 100Mb Disks PC 10-PK
IOM030 $199

ZIP 100Mb Disks MAC 10-PK
IOM074 $199

ZIP 100Mb Disk MAC 1-PK
IOM086 $25

ZIP 100Mb Disk PC 1-PK
IOM085 $25

ZIP 100Mb Gigacolour Disks 2-PK
IOM099 $45

NEW ZIP 250Mb Disks PC 10-PK
IOM102 $45



IAZ 1Gb Disk PC 3-PK
IOM032 $569

IAZ 2Gb Disk PC 1-PK
IOM097 $199

IAZ 2Gb Disk MAC 1-PK
IOM006 $199

IAZ 2Gb Disks PC 3-PK
IOM089 $589

IAZ 2Gb Disks MAC 3-PK
IOM078 $589

Irina



All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

INTERNATIONAL SOFTWARE WAREHOUSE Pty. Ltd.

EVERYTHING FOR YOUR PC - DELIVERED NATIONWIDE!



TextBridge Pro 98

SPECIAL OFFER!

The award winning Textbridge Pro 98 is available for a limited period for just $49!! Combining a highly accurate OCR engine with a simple user interface and one click operation, Textbridge Pro 98 has taken scanning software to a new level.

Faxes, photocopies or articles can be converted into fully editable documents within seconds - at higher levels of accuracy than ever before. Eliminate the need for retyping documents now. Use Textbridge Pro 98!

XER007

$49

Limited Stocks

iomega zip 250 — The Big Capacity, Take-It-Anywhere Drive



NEW PRODUCT

It's light. It's portable. And now, with 250MB at your fingertips, it holds more files than ever before. 250MB Zip disks are big enough to handle just about anything - the equivalent of 170 floppies! And unlike CD-ROMs, you can rewrite to Zip disks. Slip it in your backpack. Place it in your briefcase. At less than 0.5kg, the 250MB Zip is the easiest way to take your important files wherever you go.

And don't forget, you can use 100MB* Zip disks in your 250MB Zip drive. So you've got the best of both worlds. With over 100 million Zip disks sold, the 250MB drive is the only way to go for collecting, creating and sharing your files.

IOM100 Zip Drive 250MB (Parallel)	$379
IOM101 Zip Drive 250MB (SCSI)	$379

For more information on which drive is right for you, contact our sales team on 1300 300 003

IOM098 Zip Drive (USB)	$289
IOM022 Zip Drive External (Parallel port)	$239
IOM020 Zip Drive External (SCSI Port)	$239
IOM095 Zip Internal ATAPI	$199
IOM096 Zip Starter Kit (Parallel port)	$289

*100MB capacity where 1MB=1million bytes. The capacity reported by your operating system may differ.

iomega jaz 2GB



The storage Jaz 2GB drives and disks offer the ideal solution for storing, transporting and playing multimedia applications. Speedy access times and rapid transfer rate mean you can quickly and easily move files around. The Jaz drive can handle even the most demanding applications, including full-screen full motion videos!

IOM083 JAZ 2GB Ext	$699
IOM082 JAZ 2 GB Int	$759

Seagate Tape Backup Units



TRAVAN 4 - 8Gb

Features hardware compression and read while write. Backs up to 60Mb per minute*. The unit installs easily, and comes with a 2 year guarantee. The kit also includes Seagate Backup Exec and a free bonus tape to get you started.

SEA140	Internal IDE Kit	$549
SEA141	Internal SCSI Kit	$649
SEA142	External SCSI Kit	$975
SEA155	5 pack of Travan tapes	$259



DAT 12 - 24Gb

Ideal for network backup. This SCSI interface drive features proven technology for premium capacity and performance. Backs up at a rate of 2.2Mb per second*. Comes with a three year warranty.

SEA145	Internal SCSI Kit	$2589
SEA178	External SCSI Kit	$2949



AIT 25 - 50Gb

This Advanced Intelligent Tape unit backs up at the rate of 6Mb per second*. Featuring advanced metal evaporated tape (AME) memory in the cassette, this drive gives significantly faster loading and access times. And the self cleaning mechanism ensures high reliability.

SEA146	Internal Fast Wide SCSI Drive	$4769
SEA147	External Fast Wide SCSI Drive	$5419
SEA154	50Gb AIT tape	$189

*All transfer speeds assume 2:1 compression.

SEAGATE BACKUP SOFTWARE

Workstation

Seagate Backup Exec v3
SEA109 $125

Seagate Backup Exec v3 Upgrade SEA156. $48

NT Server

Seagate Backup v7.2 NT Single Server
SEA101 $865

Seagate Backup v7.2 NT Single Server Upgrade
SEA175 $519

Seagate Backup v7.2 NT Multi Server
SEA041 $1765

Call for latest pricing on Seagate Backup for SBS and Novell Netware

All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

For the cost of a local call **Orderline 1300 300 003 or 02 9700 8800**

Sales Lines Open 9am 'til 6pm Monday to Friday and 10am 'til 3pm Saturday

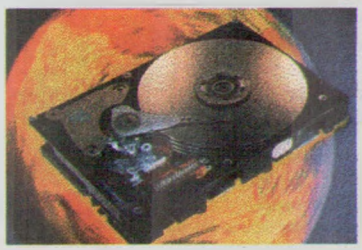
FIND IT CHEAPER? CALL US - WE WON'T BE BEATEN!*

*See page 46 for Price Pledge

Need more space? Seagate Ultra-ATA Hard Drive U/G Pack

Seagate

Everything You Need for a Successful and Easy Drive Installation on your Pentium or equivalent PC.



Seagate hard drive kits are customer-focused, to bring you affordable high-capacity storage solutions. Each Ultra-ATA hard drive comes with a three year warranty, and is fully tested to ensure compatibility, reliability and exceptional quality. Seagate hard drive kits provide you with everything you need to get your new drive up and running.

The upgrade pack includes:

- Seagate Ultra-ATA Hard Drive
- Full step-by-step installation guide. Never opened your computer before? Don't worry. This step by step guide will take you through it, from installing the drive to loading your software.
- Frame kit, screws and mounting brackets. Ever gone to upgrade your PC, only to find that you haven't got all the bits you needed? Not with this kit! Everything is included.
- Wrist Strap. Don't blow your machine up with static electricity! The guide explains how to use the wrist strap to prevent static electricity from destroying your CPU or your RAM when installing your new hard drive.
- EACH SEAGATE HARD DRIVE KIT COMES WITH A 3 YEAR WARRANTY, SO YOU CAN BUY WITH CONFIDENCE.

SEAGATE MODEL	ST34321A	ST36531A	ST38641A	ST310240A
FORMATTED CAPACITY	4300MB	6500MB	8600MB	10240MB
AVERAGE LATENCY	6.67msec	5.56msec	5.56msec	5.56msec
SPINDLE SPEED	5400RPM	5400RPM	5400RPM	5400RPM
DATA BUFFER	128K	128K	128K	128K
FORM FACTOR	25.4mm	25.4mm	25.4mm	25.4mm
PIO BURST (MB/S)	UP TO 33M	UP TO 33M	UP TO 33M	UP TO 33

SEA161 Seagate 4.3GB Ultra ATA-Kit **$335**

SEA162 Seagate 6.5GB Ultra-ATA Kit **$385**

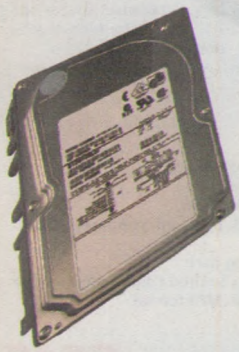
SEA164 Seagate 8.6GB Ultra-ATA Kit **$455**

SEA166 Seagate 10.2GB Ultra-ATA Kit **$505**

REMEMBER: HARD DRIVE PRICES FLUCTUATE. CALL FOR LATEST PRICE.

Quantum Quality Hard Drives at Affordable Prices

Quantum 4Gb only $299!



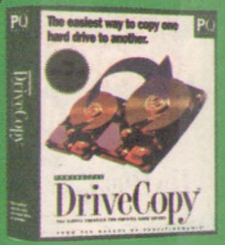
IDE

Drive	Model	Speed	Access Time	Price	Code
Fireball EX 3.2Gb	QM303200EXA	5400rpm	9.5ms	$239	QUA169
Fireball EX 6.4Gb	QM306400EXA	5400rpm	9.5ms	$299	QUA170
Fireball EX 10.2Gb	QM310200EXA	5400rpm	9.5ms	$439	QUA171
Fireball EX 12.7Gb	QM312700EXA	5400rpm	9.5ms	$459	QUA168

SCSI

Drive	Model	Transfer Rate	Access Time	Price	Code
Atlas III 9.1Gb Wide Ultra	QM309100TDLW	80Mb/sec	7.5ms	$829	QUA172
Atlas III 9.1Gb Narrow Ultr	QM309100TDS	20Mb/sec	7.5ms	$8929	QUA173
Atlas III 18.2Gb Wide Ultra	QM318200TDLW	80Mb/sec	7.5ms	$1499	QUA150
Atlas III 18.2Gb Narrow Ultra	QM318200TDS	20Mb/sec	7.5ms	$1499	QUA174

For further information, or pricing on hard drives not featured, please call our sales team on 1300 300 003



DRIVE COPY 2

THE EASIEST WAY TO COPY YOUR OLD HARD DRIVE TO YOUR NEW DRIVE!

Drive Copy 2 makes upgrading to a new hard drive easy. Using Drive Copy you can copy everything, including multiple partitions and operating systems, from one hard drive to another in minutes. You can even copy selected partitions to a larger or smaller drive.

No more back up, format, FDISK, reinstall and restore.

No more worries about command line switches.

Copying hard drives now takes minutes instead of hours!!

$49

CHK002

Kieran



All prices INCLUDE sales tax. Prices subject to change. see page 48 for terms & conditions.

Orderline 1300 300 003 or 02 9700 8800 Order by fax 02 9700 8801

Enquiries 02 9700 8800 Internet site www.iswh.com.au

13 Bradford Estate
10 Bradford St
Alexandria
Sydney 2015

INTERNATIONAL SOFTWARE WAREHOUSE Pty. Ltd.

EVERYTHING FOR YOUR PC - DELIVERED NATIONWIDE!

RoboCAM USB Digital Camera



- Crystal clear picture
- Plug & play Universal Serial Bus (USB) interface for easy installation
- Capture up to 30fps (352 x 288 pixels) full motion video
- Support single frame snapshot up to 640x480 pixels
- Low power consumption idea for notebook computer
- Variable compression ratio for different applications
- Support TWAIN interface for image editing applications
- No video capture card or power adapter necessary

ASS023

$199

Umax Maxvision B5



- 15 inch FST,
- 0.28mm dot pitch,
- Non glare,
- 1280 x 1024 @ 70Hz max NI

UMA016 **$349**

Umax Maxvision B7



- 17 inch FST, 0.27mm dot pitch,
- Non glare,
- 1280 x 1024 @ 70Hz Max NI

UMA017 **$689**

Umax Maxvision B7 Plus



- 17 inch FST
- 0.25mm dot pitch
- Non glare dark glass
- 1600 x 1200 @ 87Hz Max NI
- Standby power switch

UMA018 **$995**

Daewoo 14 inch monitor



- 1431X Colour digital monitor
- 1024 x 768 resolution NI
- 0.28mm dot pitch,
- non glare screen.
- 3 year warranty.

$249 DAE002

Daewoo 15 inch monitor



- 518B FST Colour digital monitor.
- 1280 x 1024 resolution (at 60Hz),
- 0.28mm dot pitch,
- non glare anti static screen,
- 20 mode memory.
- 3 year warranty.

$299 DAE003

Daewoo 17 inch monitor



- 1710B FST Colour digital monitor.
- 1280 x 1024 resolution (at 60Hz)
- 0.28mm dot pitch,
- non glare anti static screen
- 20 mode memory.
- 3 year warranty

$599 DAE004

Accelerate your world with Diamond

Monster Fusion

Voodoo 3D Gaming & Blistering 2D Speed!

Diamond's new Monster Fusion takes edge-of-your-seat Voodoo 3D gaming performance and fuses it with high-speed 2D acceleration - all on a single card. Based on ground breaking 3Dfx technology, Monster Fusion brings you outrageous 60 frames per second game play, state-of-the art 3D features, and complete game support based on the most popular APIs. Your 2D presentation and Web graphics will fly on the screen in vivid color at resolutions up to 1900x1200.



Key Features:
- 3DfxTM Voodoo BansheeTM technology
- Fully integrated 3D and 2D graphics with 16MB memory
- True 128-bit Windows acceleration
- Outrageous 3D gaming performance at 60 fps
- Awesome game support: Glide, Direct3D and MiniGL
- Available in PCI and AGP models

DIA035 Diamond Monster Fusion AGP **$289**

DIA036 Diamond Monster Fusion PCI **$289**

Viper V550

Unprecedented 128-bit Power for 2D, 3D and Video!

Viper V550 from Diamond features unprecedented 128-bit power for state-of-the-art 2D business graphics and stunning 3D quality with high-speed game play. Based on the revolutionary NVIDIA RIVA TNTTM chipset, and fully optimized for Windows 98, the Viper V550 represents the next generation in high performance graphics acceleration. Viper offers extensive multimedia features, and full support for Direct3D and OpenGL.



Key Features:
- TwiN Texel engine with true single-pass multitexturing for exquisite 3D rendering
- Revolutionary 3D quality and performance for gaming and business applications
- State-of-the-art 2D acceleration with 16MB RAM and 250MHz DAC for true colour support up to 1920x1200
- Display graphics and video on your TV (retail version only)
- Available in PCI and AGP 2X
- Exciting software bundle including games and business software

DIA046 Diamond Viper V550 PCI **$299**

DIA048 Diamond Viper V550 AGP **$299**

Rio PMP300

Internet Music in the Palm of Your Hand!



Diamond's Rio PMP300 is the first portable MP3 music player that stores up to 60 minutes of digital-quality sound. It's smaller than an audio cassette and has no moving parts, so it never skips. Powered by a single AA battery, Rio provides up to 12 hours of continuous music playback. Goodnoise, the premier source on the net for high-quality, downloadable music, is located at www.goodnoise.com.

Key Features:
- Palm size for easy portability
- Supports MP3 compression
- 32MB built-in flash memory
- Expandable playback time with removable flash cards
- Skip free - no moving parts
- MusicMatch Jukebox Limited Edition software for converting CD's to an MP3 format
- CD Music Sampler

DIA047 Diamond Rio PMP300 **$449**

All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

For the cost of a local call Orderline 1300 300 003 or 02 9700 8800
Sales Lines Open 9am 'til 6pm Monday to Friday and 10am 'til 3pm Saturday.
VISA MasterCard BANKCARD PAY

FIND IT CHEAPER? CALL US - WE WON'T BE BEATEN!*

Turn Ordinary Videos Into Extraordinary Videos with

Studio 400 & Studio DC10 Plus

Whether you want to edit videos of the kids and want a simple plug and play editor for your home PC, or you're putting together a corporate presentation or editing video for your web site, there is a Pinnacle Studio editing product for you.

Both the Studio 400 and Studio DC10 Plus feature:

- Pinnacle's award winning Studio editing software which offers users simple drag and drop editing, plus 100s of special effects.
- TypeDeko titling software for giving your productions professional looking titles.
- SmartSound Studio software for generating background music and for adding narration or a CD soundtrack to your movies.
- Microsoft Direct Show technology for instantly previewing your movie.
- The ability to output AVI files for the internet.
- Microsoft Net Meeting software for video conferencing.
- Hot Key's unlimited free technical support and 60-day money back guarantee.



WHICH STUDIO PRODUCT IS RIGHT FOR YOU?

	Studio 400	Studio DC10 Plus
Internal/External	External	Internal
Disk Space (1/2 hr vid)	75MB-150MB	1.5GB-10GB
Max Resolution Capture	160x120	760x576
	15 fields/sec	50 fields/sec
Output	720x586	768x576
	50 fields/sec	50 fields/sec
Import AVI files	No	Yes

Note: Studio DC10 Plus replaces: Miro DC10, Miro DC20, and Miro DRX

RECOMMENDED PC REQUIREMENTS

	Studio 400	Studio DC10 Plus
Processor	P133	P233 or Celeron 300A
Hard Drive	2GB	8GB
RAM	16MB	64MB
SCSI Drive	No	Yes*
Operating System	Win95/98	Win95/98

* Required for capture rates above 3MB/Sec.



NIT013 Studio 400

$699

PIN024 Studio DC10 PLUS

$679



buz™ Multimedia Producer

- **Get your multimedia stuff into your PC**
- **Personalise it using the easiest software around**
- **Share it with others using Zip or Jaz disks, VCR tape or even the Internet**

iomega

Capture, Edit, and Share video, digital photos, and sound using your computer.

Buz puts you in the director's chair. Create would-class presentations, home movies, capture, edit, add music and audio to your videos and even create multimedia for Web sites. All on your PC.



Buz features three versatile, powerful applications working together to let you produce your own cool multimedia projects

Video software: MGI VideoWave SE Plus lets you edit video, add graphics and mix sound. The Buz Video Software lets you add text, transitions, special effects and CD-quality audio to your home videos and then output them to videotape, the Internet, or Zip and Jaz disks.

Photo software: PictureWorks HotShots lets you edit, catalogue and share your digital photos. Create calendars, birthday card invitations, or digital postcards with your digital photos. The Buz Photo software is a digital-photo manipulation software application that lets you change the background colours, crop images, add type to images, create photo albums and lots more. Your images can then be imported to your videos.

Audio software: Iomega RecordIt lets you capture music from audio CDs or tapes and voice or audio from microphones directly to Zip or Jaz disk, or even your hard drive. Music and audio tracks from RecordIt can be imported into your videos.

Stock Code IOM080

$349



Here is What you get

Buz is a unique combination of hardware, software, tutorials, and high performance:

- PCI Card combining professional quality video capture, real-time hardware video compression, high-quality video output and Ultra SCSI connectivity. (50-pin high density external and 50-pin internal connectors.) The Ultra SCSI connector gives you the very best performance from SCSI peripherals, such as Jaz 2GB.
- User friendly Buz Box with in/out connections for composite video, S-Video and L/R stereo audio. No more crawling around under your desk to find the right connectors on the back of your computer.

What can you do with Buz? You're limited only by your imagination.

Capture

- Capture Audio/Video and digital photos from a variety of sources
- Get video from camcorders, VCRs laserdiscs, or DVD
- Get images from scanners, CD-ROM, or Jazz and Zip disks with Buz's Ultra SCSI connection
- Capture audio from microphones, CDs or tapes



PAINT SHOP PRO

THE VERSATILE IMAGE DESIGN STUDIO

Paint Shop Pro 5 is a complete image creation and manipulation program that enhances the imaging power of business and home users with unrivaled ease of use, speed and affordable functionality.

To express your self with rich and arresting imagery, you need tools that offer innovative functionality and the flexibility to work in any setting without slowing you down. Whether you need to design corporate Web graphics or touch up a family photograph, Paint Shop Pro is the perfect program to express and enhance your visual creativity.

IAS009

$135

Melody



All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

INTERNATIONAL SOFTWARE WAREHOUSE Pty. Ltd.

EVERYTHING FOR YOUR PC - DELIVERED NATIONWIDE!

RoboCAM USB Digital Camera



- Crystal clear picture
- Plug & play Universal Serial Bus (USB) interface for easy installation
- Capture up to 30fps (352 x 288 pixels) full motion video
- Support single frame snapshot up to 640x480 pixels
- Low power consumption idea for notebook computer
- Variable compression ratio for different applications
- Support TWAIN interface for image editing applications
- No video capture card or power adapter necessary

ASS023

$199

CapView

Portable external USB Video Capture, Conferencing, and Editing.

Capture video from any camera, VCR, TV, or video input device, and explore what you can do on a PC using the latest video editing software. Solutions for both the Novice or Professional users.

NEW PRODUCT

Enjoy video conferencing face-to-face with your family, colleagues or friends. Over the internet it will only cost you less than a $1 an hour! You can even record and send Video e-Mail messages.

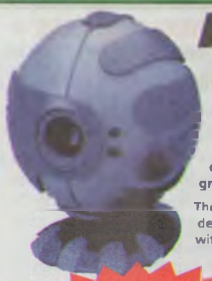
Features:

- Portable external Plug-N-Play USB device
- Video capture up to 30fps @ 352x288 and 640x480 single frame
- TWAIN compatible interface
- Video Conferencing standards H323, H263...
- Includes ULead Video Studio 3.0 editing software



ASS022 CapView **$139**

Robo Snoop Bundle



Video Conferencing, Personal Surveillance/Receptionist & Message Recorder Combined, "Robo Snoop" will allow users the option to perform video conferencing, surveillance, video capture, receptionist duties & message recordings, all for a great price.

The RoboCam USB Camera delivers crystal clear pictures with the latest CMOS 300K technology.

Now with Free Internet Phone Valued at $69

PC Snoop integrates Stealth surveillance & Video Message Recording for Home & Office applications.



ASS017 RoboSnoop Bundle **$279**

AI Gotcha 2

Portable Video Capture

Take snapshots of your favourite images from Camcorder, VCR, or other Video source in 16.7 million colours into your PC. You can use photos for multimedia presentations, web page publishing, disk-based catalogues personal photo albums, image database, digital greeting cards, newsletters, e-mails and much more. This is a simple plug-in (parallel port) and play device providing a high quality portable capture solution. By connecting to a video source, whether composite or Y/C, an extremely high quality image can be captured (1600 x 1200 dpi) into any of the supported graphic file formats.

Features

- AiGotcha! Real-time image capture software
- Internet audio postcard
- Parallel port extension cable
- AIGotcha hardware (NTSC/PAL)
- Video Craft Multi-Media suite of special effects
- Pass through printer connections



* for a limited time only

ASS011 AI Gotcha 2..... **$145**

Pocket Scan Converter (PSC 1106)

Your business presentations on the big screen.

Using the Pocket Scan Converter in conjunction with your notebook computer (or PC), any presentation can be displayed on a TV or recorded onto video tape, making the Pocket Scan Converter ideal for business, education and training applications. This compact device simply plug into your notebook/PC and the other end into a TV/Video to put your presentations onto the big screen. And when the work is done,play computer games on your TV. Designed with flicker reduction circuitry and S-VSH support, the Pocket Scan Converter produces extremely vivid, high quality images with up to 16.8 million colours.



* for a limited time only

ASS001 PSC 1106 **$169**

Hauppauge! Bring TV To Your PC With WinTV!

WinTV-Primio, WinTV-PCI and WinTV-Radio PCI Boards give you live video-in-a-window!

Hauppauge's WinTV Boards are single slot PCI cards with 125-channel TV-tuners. The TV-source can be from aerial or cable set top box TV. With the external audio/video inputs, you can also connect to a satellite receiver or VCR, camcorder or video camera. The WinTV Boards also extract Teletext data from the TV signal, and include VTPlus, the Professional Teletext software. These PCI boards connect to your cable TV or to a TV antenna, and display live TV in a resizable window. They do this by digitising the live video (from either the built-in 125-channel cable TV tuner or the external video- input source) using high quality 4:2:2 video sampling. The digitised video is sent over the PCI bus into the memory of a VGA display adapter, a technique which makes the WinTV PCI boards easy to install and gives a great looking TV picture!

The WinTV-Primio, WinTV-PCI and WinTV-Radio support Intercast data reception and Teletext data reception. Included is our VTPlus software, for multiple teletext page display and DDE (dynamic data exchange). While live video is being displayed, these boards can also extract either Intercast data (Channel 7 in Sydney and Melbourne) or teletext data from the TV signal.

TV Just Got Better!



The WinTV PCI boards have these great features:

- Live TV-in-a-window on VGA monitors from 640 x 480 to 1600 x 1200 pixels in up to 16 million colors- unique to WinTV.
- Built-in cable ready TV tuner: a 125-channel TV tuner with automatic channel scan.
- Resize the WinTV window from icon size to full screen (or any size in between!).
- Auxiliary audio/video input connects to video cameras, VCR's and camcorders.
- Audio output can go to your sound card's Line-In connector or to self-powered speakers.
- Capture professional quality 24-bit images with 4:2:2 digitizing.
- Image save formats supported: TIFF, BMP, PCX, GIF, TGA plus compressed JPEG in color or black/white at 8, 16 and 24-bits.
- Videoconference over the Internet! The WinTV PCI's video digitizer is compatible with your favorite conferencing package such as: Microsoft NetMeeting, CU-SeeMe, Smith Micro's AudioVision, VDOnet, Connectix VideoPhone, Vocaltec's iPhone, Vivo and lots more. Simply add a video camera and one of these software packages to video conference over the phone lines or the internet.
- Create high impact presentations with 320x240 AVI clip capture with real time preview. Creates high quality AVI video's in a YUV format.

HAU001 WinTV-Primio (with PAL B/G tuner and teletext) **$199**

HAU002 WinTV-PCI (with PAL B/G tuner, teletext decoder, intercast, full stero sound) **$269**

HAU003 WinTV-Radio (with PAL B/G tuner, teletext, FM Radio, intercast) **$349**

All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

For the cost of a local call **Orderline 1300 300 003 or 02 9700 8800**

Sales Lines Open 9am 'til 6pm Monday to Friday and 10am 'til 3pm Saturday.

VISA MasterCard BPAY

FIND IT CHEAPER? CALL US - WE WON'T BE BEATEN!*

*See page 48 for Price Pledge

ANOTHER BLOCKBUSTER FROM INTERNATIONAL SOFTWARE WAREHOUSE!

KODAK DC200 DIGITAL CAMERA FOR ONLY $699!

"Finished file" capability enables easy transfer of pictures from the camera to the computer through a PC card reader and software that supports JPEG and / or FlashPix(tm) images files.

TV/Video output capability (NTSC or PAL video formats) provides easy review of pictures though a video monitor or television.



A 4MB CompactFlash removable memory card stores up to 60 pictures in low resolution, and 13 images in high resolution.

Kodak digital science

Technical Information:

1160 x 872 pixels

Image resolution: 1152 x 864 pixels (high), 640 x 480 pixels (standard)
Colour: 24-bit, millions of colours
LCD Viewfinder: 1.8" TFT colour LCD for review and preview
Flash: Built-in (automatic, fill, red-eye, fill/red-eye, off)
Lens: Focus-free, 37mm threads accept optional lenses

- Self timer (10 sec)
- InfoLithium rechargeable battery and charger

KOD024 Kodak DC200 Digital Camera **$699**

Sony Mavica MVC-FD81


This is your camera.


This is your film.


This is your developer.

Shoot Still or Moving Images Straight to Floppy Disk.

Shoot still or moving images (with voiceover) straight on a 3.5" disk and email it to friends and family anywhere in the World in minutes. With the Mavica MVC-FD81, users can record XGA resolution (1024x768) still images and up to one minute of MPEG moving images onto a standard 3.5" disk with no need for special capture boards, driver software or messy cables. This new digital camera takes technology to new levels.



Features:

- Removable 3.5" 2HD floppy disk storage media
- XGA (1024x768 pixel)resolution
- Up to 20 shots fine/40 std per disk (VGA JPEG), 8 fine/16 std (XGA JPEG)
- MPEG Movie mode (up to 60 sec)
- 3x Optical Zoom lens (f5.2-15.6)
- Voice Memo mode (up to 10 sec)
- Self timer (10 sec)
- InfoLithium rechargeable battery and charger

SONY25 Sony Mavica MVC-FD81 Camera **$1949**

3COM PALM III



Stay organised, wherever you go! The 3COM Palm III is the latest version of the award winning range of personal organisers from 3COM. Weighing in at an amazing 126 grams (approx 160 grams including the batteries) and measuring 12cm by 8cm by 2cm, the Palm III can:

- Store 6000 addresses
- 5 years of appointments
- 1500 to do items
- 1500 memos
- 200 emails

It includes an address book, date book, to do list, memo pad, expense report templates, calculator, security options and some bonus games. Powerful enough to keep you organised. Small enough to fit in your pocket. The amazing Palm III from 3COM.

USR051..... **$599**



adaptec

We move the information that moves your world!



Adaptec's range of SCSI Controller Cards range from entry level non bootable ISA adaptors to multi-channel PCI Ultra 2Wide adapters and RAID Controllers.

Adaptec SCSI Adapters	Bus Type	Transfer Method	Floppy Support	BIOS	Number of devices supported	Device Protocol	Peripheral Support	SCSI Transfer Rate/sec	O/S Support	Stock Code	Price
AVA1505A KIT	ISA	PIO	No	No	Up to 7	SCSI 1,2	CD-ROM All Standard	Up to 5Mb	Dos/Win&Win95/NT	ADA055	$99
AHA1520B KIT †	ISA	PIO	No	Yes	Up to 7	SCSI 1,2 Fast SCSI	SCSI All Standard	Up to 10Mb	All OS**	ADA040	$249
AHA1542CP KIT †	ISA	DMA	Yes	Yes	Up to 7	SCSI 1,2 Fast SCSI	SCSI	Up to 10Mb	All OS**	ADA056	$575
AHA2940PCI	PCI	DMA	No	Yes	Up to 7	SCSI 1,2 Fast SCSI	All Standard SCSI	Up to 10Mb	All OS**	ADA057	$415
AHA2940U KIT †	PCI	DMA	No	Yes	Up to 7	SCSI 1,2 Fast SCSI Ultra	All Standard SCSI	Up to 20Mb	All OS**	ADA058	$469
AHA2940UW KIT †	PCI	DMA	No	Yes	Up to 15	SCSI 1,2 Fast Wide Ultra	All Standard SCSI	Up to 40Mb	All OS**	ADA059	$589
AHA2940U2W KIT †	PCI	DMA	No	Yes	Up to 15	SCSI 1,2, Fast SCSI, Fast Wide, Ultra SCSI, Ultra Wide, Ultra 2,	All Standard SCSI	Up to 80Mb	Win NT4.0 & 5.0, Win 95, NetWare 3.1x & 4.x SCO UnixWare 2.1.2, OS/2 Warp 3 & 4 and SCO Unix 3.2v4.2	ADA051	$749
AHA3940AU KIT	PCI	DMA	No	Yes	Up to 14	SCSI 1,2 Fast SCSI, Ultra SCSI	All Standard SCSI	Up to 40Mb (20Mb per Channel)	All OS**	ADA060	$899
AHA3940AUW KIT †	PCI	DMA	No	Yes	Up to 30	SCSI 1,2 Fast SCSI, Fast Wide Ultra SCSI, Ultra Wide	All Standard SCSI	Up to 80Mb (40Mb per Channel)	All OS**	ADA061	$965

*Peripheral Support of Hard Disk, CD Rom, Removables, MO, tape, DAT, Flopticals
**O/S Support: DOS(3.3 & up), Win 3.1/95, SCO Unix, Solaris Unix, UnixWare, NetWare(3.1,3.11,3.12, & up), Windows NT(3.1,3.5,4.0) & O/S/2(2.0, 2.1)
† Also available as card only.
Please call for Adaptecs full range of SCSI cards

SCSI Adaptors

ADA062 APA-358 Combo Kit **$269**

ADA063 APA - 1460-B Kit **$339**

All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

INTERNATIONAL SOFTWARE WAREHOUSE Pty. Ltd.

EVERYTHING FOR YOUR PC - DELIVERED NATIONWIDE!

WEBSITE

We have a new website address:

www.iswh.com.au

If you have visited our website before, we invite you to take another look. You will find it has changed quite dramatically. More information, more products and more importantly, more great deals! Thousands of products, all at the best prices. Whether you are looking for information, or want to place an order, make sure you pay us a visit first!

APC AMERICAN POWER CONVERSION

The Best Value in PC Power Protection

Back-UPS Best value power protection for stand alone PCs.

Save $$ on Back-UPS & Back-UPS Pro

Features

- Compact design for desktop computers
- Surge protected outlet for laser printers
- Three battery back-up outlets to protect your work
- Lightning and surge suppression to protect your hardware
- Full-time EMI/RFI filters for noise filtration
- Communication interface port
- QuickSwap battery replacement system and Quick recharge
- User adjustable option switches allow you to save battery power
- Two year warranty and Industry approvals

APC013 APC Back-UPS 300 $205
APC021 APC Back-UPS 500 $259
APC022 APC Back-UPS 650 $395

Back-UPS Pro Performance power protection for advanced [illegible]

Features

- Instantaneous Backup Power beats blackouts and brownouts
- Lightning and Surge Protection offer maximum hardware protection
- Network-grade Line Conditioning prevents glitches
- Compact Design for efficient use of your workspace
- User Replaceable, Hot-Swappable Batteries lower service costs and increase life span
- Communications Interface automatically preserves data integrity
- 10Base-T network cable surge suppression
- Advanced Warning Diagnostics prevent downtime
- Two year warranty and Industry approvals



APC001 APC Back-UPS Pro 280 PNP $309
APC002 APC Back-UPS Pro 420 PNP $429
APC003 APC Back-UPS Pro 650 PNP $575

Smart-UPS 420 & 620

Power management for advanced business networks

Features

- Instantaneous Backup Power beats blackouts and brownouts.
- Full-time Surge Suppression and Noise Isolation.
- CellGuard, Intelligent Battery Management.
- Advanced Warning Diagnostics & User replaceable, hot swappable batteries.
- SmartBoost and SmartTrim provide true brownout and overvoltage correction.
- Full C-Tick, UL, and CSA approvals and 2 year warranty.

Includes FREE PowerChute plus



APC025 APC Smart-UPS 420 $499
APC026 APC Smart-UPS 620 $679

Also Available:

APC005 APC Smart-UPS 700 $899
APC006 APC Smart-UPS 1000 $1279

Drive Image Professional

The fastest, easiest and most affordable way to clone workstations.

SmartSector technology speeds up the image create and restore process, by only copying used or allocated sectors on the hard drive, eliminating the slow down that occurs when copying fragmented data. If you want to copy all sectors on the hard drive, you can deactivate SmartSector. And the graphical interface ensures ease of use.

CHK006 $1189



Check out our selection below or call our sales team for assistance on 1300 300 003

CIT003 Citrix Winfram Enterprise	$8299
GRE005 Check 2000 Server plus 4 clients	$399
PIX013 Disk Keeper 4 Single Server	$549
PIX014 Disk Keeper 4 Workstation	$99
LOT509 Lotus Domino Mail Business Pack	$769
LOT275 Lotus Domino Server Single Licence	$1299
MIL002 Millenium Buster Test 5 user	$115
MIL003 Millenium Buster Fix 5 user	$425
MS Back Office Server and Back Office MOLP	- call for lowest prices
MSS072 MS Back Office SBS plus 5 clients	$2239
MSS117 MS Back Office SBS additional 5 clients	$515
MSS207 MS Exchange Server 5.5 plus 5 clients	$1649
MS Exchange MOLP	- call for lowest prices
MIC463 MS Win NT Server plus 5 clients	$1199
MS Win NT Server MOLP	- call for lowest prices
APC016 Powerchute Plus	$85
POW006 Powerchute For Win NT	$139
SEA101 Seagate Backup 7.2 NT Server	$949
SEA041 Seagate Backup 7.2 Enterprise	$1765
EQU020 Zetafax 5.5 plus 5 users	$799

Novell Netware 5



USING A PREVIOUS VERSION OF NOVELL NETWARE? CALL FOR THE BEST UPGRADE PRICING.

NOV316
Netware 5 Server plus 5 users $1730
NOV317
Netware 5 additional 5 licenses $1440
NOV318
Netware 5 additional 10 licenses $2070
NOV319
Netware 5 additional 25 licenses $3980
NOV320
Netware 5 additional 50 licenses $5960

Novell Netware pricing is based on the US dollar, and is therefore volatile. Always call for the latest pricing it may now be cheaper! Alternatively, check out our website at www.iswh.com.au

All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

For the cost of a local call **Orderline 1300 300 003 or 02 9700 8800**

Sales Lines Open 9am 'til 6pm Monday to Friday and 10am 'til 3pm Saturday.

VISA MasterCard BPAY

FIND IT CHEAPER? CALL US - WE WON'T BE BEATEN!*

D-Link Integrated Networking

In today's communication, networking means connecting people together at work, at home and on the move, creating a world of information at every one's fingertip and affordable to every one.

D-Link, a leader in workgroups' communication, provides integrated solutions that guide you on the fast track to the most economical and dependable way of networking. Products range from intuitive adapters for desktop connectivity, to handy network cards for mobile users and high-speed devices for seamless internetworking. Coupled with a global presence, D-Link is committed not only to providing powerful networking tools but also to customer satisfaction with on-target consultation and service throughout five continents.

Ethernet PCMCIA

DMF-560TX

PCMCIA 10/100Mb LAN & 56k Modem PC Card



- 10/100Mb Auto Sensing LAN Port
- V.90 K56 Flex Fax/Data/Modem
- Rockwell Chipset
- Uses only one Type 2 PCMCIA slot
- Compatible with Acer, Compaq, Digital, IBM, NEC and Toshiba notebooks
- Concurrent use of LAN and Fax/Modem
- Simple plug and Play installation
- Supports Windows 95/98/NT and others
- Fully approved A-Tick and C-Tick

DLK005 **$449**

Internet Server

DP-602

2 port Internet ready Server for SOHO Networks



- 1 x 10/100Mbs NWAY Ethernet Port, 2 x RS-232 460kbs Com Ports.
- Supports NAT for single ISP user account, Dial-on-Demand, DHCP, PPP, PAP/CHAP Security.
- Dual use of Com ports for double bandwidth. Support for Analog modem or BRI ISDN TA.
- Admin through Windows based program, Web browser and telnet.

DLK006 **$475**

10/100Mbps NWay Dual Speed Hubs

DFE-908X/N

8-port 10/100Mbits Dual Speed Hub with Switching. Stackable



- Unmanaged 8 port Nway Dual Speed Hub. Stackable up to 5 units or 40 ports.
- 8 x RJ45 ports to support CAT3,4,5 for 10Mbit connection, CAT5 for 100Mbit connection.
- Internal switch module to connect 10 and 100Mbit backplanes.

DLK011 **$679**

DFE-916x/N

16-port 10/100Mbits Dual Speed Hub with Switching. Stackable



- Unmanaged 16 port Nway Dual Speed Hub. Stackable up to 5 units or 80 ports.
- 16 x RJ45 ports to support CAT3,4,5 for 10Mbit connection, CAT5 for 100Mbit connection.
- Includes switch module to connect 10 and 100Mbit backplanes. Can be managed by DFE-2624iX

DLK012 **$1249**

Ethernet Interface Adapter DFE-530TX

PCI-bus 10/100M Fast Ethernet Network Interface Card

- Intelligent Ethernet/Fast Ethernet Adapter, Auto negotiating 10Base-T/100Base-TX (Nway)
- Plug and Play support. Low CPU utilisation. 32 Bit high performance.
- Optional remote boot rom. Certified driver for Netware, SCO Unix, Windows 95, Windows 98 and Windows NT.

DLK004 DMF-530TX 10/100 PCI Network Card **$55**

Network Products - Made to Measure

Networking is part of our everyday lives, and at International Software Warehouse, we have a wide range of products to suit the Small to Medium Enterprise market all the way up to the Corporate office with over 100 workstations. As network demands have grown, users and IT managers have indentified the ever-increasaing need for stabilising their network environments.

That's why we carry a full range of quality products from Network Interface Cards to Switches and Print Servers. This is just a sample of some of our exciting range!

HEWLETT PACKARD HP Hubs & Switches at-a-glance

Desktop Value Line Hubs	Desktop Feature Line Hubs & Switches	Interconnect Switches
Excellent value and worry-free operation for any size network	Modular designs for easy upgrades and expansion.	High Performance with affordability and simplicity.
HP ProCurve 10/100 Hub 12 and Hub 24	HP ProCurve Switch 4000M	HP ProCurve Switch 8000M
HP ProCurve 10Base-T Hub 12M and Hub 24M	HP ProCurve Switch 2400M	HP ProCurve Switch 1600M
HP AdvaceStack 100Base-T Hub-12TX	HP ProCurve Switch 212M & 224M	HP AdvanceStack Switch 2000
HP ProCurve 10Base-T Hub 12 and Hub 24	HP AdvanceStack 10BT Switching Hubs	HP AdvanceStack Switch 800T

Adaptors

HPN003 HP 10/100TX PCI NIC **$179**
HPN004 HP DESKDIRECT 10/100VG PCI NIC **$249**

Hubs

HPN005 HP PROCURVE 10BT 8 PORT HUB **$139**
HPN006 HP PROCURVE 10BT 12 PORT HUB **$329**
HPN007 HP PROCURVE 10/100 12 PORT HUB **$1199**
HPN008 HP ADVANCESTACK 100BT 12TX HUB **$1979**

Switches

HPN009 HP PROCURVE SWITCH 1600M **$4039**
HPN010 HP PROCURVE SWITCH 8000M **$5199**

Print Servers

HPN011 HP JETDIRECT 500X 10/100B-TX **$769**
HPN012 HP JETDIRECT EX PLUS TP/BNC **$489**

3Com More connected.

Adaptors

3CO031 PC CARD 10/100 16BIT W/CABLE **$299**
3CO032 ETHERLINK III PCMCIA TP **$269**
3CO033 ETHERLINK XL PCI 10BT **$119**

Hubs

3CO034 SS II ENTRY LEVEL HUB 12 PORT **$429**
3CO035 SS II ENTRY LEVEL HUB 24 PORT **$679**
3CO036 SS II PORT SWITCH HUB 40 12 PORT **$1079**
3CO037 SS II PORT SWITCH HUB 40 24 PORT **$1949**
3CO038 SS II DUAL SPEED HUB 500 12 PORT **$1899**
3CO039 SS II DUAL SPEED HUB 500 24 PORT **$2799**

Switches

3CO040 SS II SWITCH 1100 12 PORT **$1799**
3CO041 SS II SWITCH 1100 24 PORT **$2599**

CALL OUR SALES STAFF ON 1300 300 003 - THEY ARE READY TO HANDLE YOUR NETWORKING QUESTIONS FROM 9AM TO 6PM WEEKDAYS.



KENS KORNER

This month I have heaps of fantastic bargains waiting to be snapped up. Some are previous versions, others have damaged packaging, but ALL carry full guarantees and warranties. Remember, there are limited stocks so call quickly.

AUS118 Ramgate **$15**

MAG008 Magtron 15" Monitor (5 only) **$249**

KEN081 Rapid Remote v1.1 (10 only) **$19**

KIS033 Rescue Me Win95 **$10**

MCA029 McAfee Web Crypto v1 **$10**

There are many more that I can't fit in here. For a full listing, check out my section on our website at www.iswh.com.au

See you next month!

Ken

Tamzin



All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

INTERNATIONAL SOFTWARE WAREHOUSE Pty. Ltd.

EVERYTHING FOR YOUR PC - DELIVERED NATIONWIDE!

Xircom PC Cards

Xircom offers a full line of of high speed PC card solutions that meet notebook users diverse communications needs in the office and on the road. Whether it's a 16bit PC Card or 32bit Cardbus solution and modem, Lan or Lan+Modem functionality, Xircom has reliable,easy to use products for accessing information on corporate networks, the Internet, Intranet or other online resources.

XIR065 CreditCard Ethernet 10/100 + Modem 56...$579



XIR269 CreditCard Ethernet 10/100$269



XIR036 CreditCard Modem 56-GlobalACCESS.....$319





3Com® More connected.™

Do you need to Get Connected?

3COM U.S. Robotics 56K* Voice Faxmodem

Includes V.90 ITU 56K standard and x2 technology



Experience the Internet like never before! Grab graphics-rich Web pages, e-mail, huge data files, real-time sound and video faster, play intense games, get more done online. Compatible with both the V.90 ITU 56K standard and x2™ technology. Includes a CD-ROM jam-packed with great software for work and play. Visit www.3com.com/56k for a compatible Internet provider near you or call us on 1300 300 003.

Key Benefits:
- Number 1 selling modem in the world
- Brings you great Web sites faster
- Software upgradable for future enhancements

Stock Code:USR104

$225

3COM U.S. Robotics 56K* Faxmodem

Includes V.90 ITU 56K standard and x2™ technology



Experience the Internet like never before! Grab Web pages, e-mail, data files, multimedia and games faster, get more done online! Compatible with V.90 standard and x2™ technology.

USR101 56K Faxmodem $179

*Can receive at up to 56 Kbps, send at at up to 31.2 Kbps. Due to FCC regulations, receiving speeds limited to 53 Kbps. Actual speeds may vary. Requires compatible phone line and server equipment.

3Com U.S Robotics 56K External Professional Message Modem



3Com's new range of 56Kbps V.90 standard desktop modems - the 3Com U.S. Robotics 56K V.90 External Professional Message Modem and 3Com U.S. Robotics 56K V.90 External Message Modem - enable users to meet all of their data, voice and message management needs with a single product, guaranteed to provide an enhanced and productive Internet experience.

Features:
- Faster Internet access
- Caller ID
- One-button access to voice messages
- Remote retrieval of voice messages through a dial-up connection
- Built-in high quality speakerphone
- V.80 (video conferencing) capable
- Easier installation and use
- Software upgradeable for future enhancements
- Backed by a Lifetime Limited Warranty
- Valued-added Connections CD-ROM Software

USR105 56K External Professional Message Modem $299

3Com U.S Robotics 56K External Message Modem

Features:
- Faster Internet access
- Remote retrieval of voice messages through a dial-up connection
- Software upgradeable for future enhancements
- Backed by a Lifetime Limited Warranty
- Valued-added Connections CD-ROM Software
- Easier installation and use

USR106 56K External Message Modem..... $269

Diamond Voice 56

Data, Voice & Fax Modem

Diamond Voice 56K modems are an ideal choice for all internet, voice, data and fax applications. Currently available in external and internal (OEM) versions, they provide internet download speeds of up to 56 Kbps* using the proprietary Rockwell K56flex standard.









The modems are flash memory upgradable to the recently ratified ITU-T V.90 standard via an easy to use Update Wizard.

Cheyenne Bitware communications software for Windows 3.x, 95 and 98 is included with each modem, allowing it to act as a fax machine, an answering machine and a data communications terminal. Faxing and voice messaging is made easy using Cheyenne Bitware and the modem's voice capabilities. A convenient stereo multimedia headset with an attached microphone is also included providing hands-free operation of the PC while telephone calls are made or received answering machine messages are reviewed.

Diamond Voice modems are also backed by a 5-year warranty and a toll-free Technical Support number, 1800-640-667.

Includes
- Diamond Voice 56 Modem
- Multimedia stereo headset with microphone
- Telephone line cord
- Serial cable (dual 25 pin and 9 pin - External modem only)
- 12 volt AC power supply (External modem only)
- Installation and Setup manual
- Technical Users Manual containing AT command reference section on CD-ROM
- Cheyenne Bitware for Windows 3.x, 95 and 98 (on CD-ROM)
- Windows 95/98/NT driver on 3.5" floppy disk
- 50 Hour free internet offer from OzEmail

Minimum System Requirements
- Computer with i486 processor (Pentium recommended)
- 8 MB RAM (16 MB recommended)
- High speed port - 16550 UART required for communications above 19,200 bps (External modem only)
- Microsoft Windows 3.1, 95 or 98 for communications software
- CD-ROM drive for communications software installation

From only $109

* For data download speeds above 33.6 Kbps, you must be connected to an Internet Service Provider (ISP) that supports the same protocol as the modem, either K56flex or V.90. The actual connection speed may vary with the telecommunications carrier line quality conditions in your area.

OFF010 Mitsubishi Diamond Voice 56K Modem (Internal) ... **$109**

OFF009 Mitsubishi Diamond Voice 56K Modem (External) ... **$139**

All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

For the cost of a local call **Orderline 1300 300 003 or 02 9700 8800**

Sales Lines Open 9am 'til 6pm Monday to Friday and 10am 'til 3pm Saturday.

VISA MasterCard BANKCARD iB PAY

FIND IT CHEAPER? CALL US - WE WON'T BE BEATEN!*

Banksia WaveSP 56

The fully featured 56,000bps modem!

FREE WEB & INTERNET SOFTWARE

The Wave SP is the first modem to be awarded a prestigious Australian Design Mark in recognition of design excellence and innovation. The assessment panel commented that "(the Wave SP) is radically different from its competitors and upholds the highest principles of unitary design".

Banksia's revolutionary new wave SP Fax Modem includes;

- High speed data transmission at 56,000bps (v.90 standard)
- Microsoft Internet Explorer™ for Internet surfing & Web site construction
- Fax transmission at 14,400bps
- Simultaneous voice & data (SVD) transmission
- Full duplex speakerphone (hands free telephone)
- Fully featured smart answerphone
- The best new games
- A radical new shape for optimum audio performance

5 YEAR WARRANTY



STOCK CODE: BAN003

Banksia K56flex Rockwell

$225

AUZ134 Banksia Wave 33.6 SP Fax Modem **$199**

BAN056 Banksia PC Card 56K **$259**

BAN060 Banksia Combo Card 56K + 10BASE T Ethernet Adaptor **$339**

NetComm CardModem56 Global

The NetComm CardModem56 Global gives you the freedom of data connection wherever you are, regardless of whether there's a phone line handy. And with data download speeds of up to a scorching 56,000bps and the ability to send and receive faxes of up to 14,400bps, you have the ultimate mobile office. So no matter where you are - in a multitude of countries around the world, between your laptop, your mobile phone and the NetComm CardModem56 Global, you'll always be in touch.

NEW PRODUCT



Features:

1+2 Warranty - NetComm's 1 year warranty, with an additional 2 years parts and labour upon registration.

Ready to Travel - a built-in interface that's designed to be approved in a variety of countries around the world

Rockwell K56flex - used to achieve superior quality in the latest telephone exchange technology

Super Reliable - specially designed for people on the move, so we've ensured it is robust enough to survive even the most punishing use

GSM Capable - achieve maximum flexibility with the option of both GSM and standard telephone line connection with high speed fax/modem capability

Your NetComm CardModem56 Global package contains the following items: CardModem56 Global, telephone line cord and warranty card. Plus communications and Internet software, modem drivers and manuals. Drivers are included for Windows 95/98, Windows NT, Windows 3.1x, MS-DOS and many third party applications. (GSM connection cables sold separately). A Global utility disk for international access.

IMPORTANT

- 56Kbps is a download proprietary standard only
- 56Kbps download speeds are subject to telecommunication carrier service
- 33.6Kbps is the maximum upload speed
- To achieve 56Kbps the Internet Service Provider you are connected to must use the same proprietary standard

STOCK CODE: NET030

$319

NetComm Roadster II 56 Voice, Fax Data Modems

Using the latest telephone exchange technology, the NetComm Roadster II 56 voice, fax, data modems deliver much greater speed. So now the World Wide Web is made much more exciting - with super fast downloading of graphics, games and multimedia.

With Simultaneous Voice and Data (SVD) functionality, you can speak to the person you are sending data to at the same time, over the same telephone line, without having to make an additional call. While playing your favourite games, speak to and hear your competitors' reaction as you blast them away!

Ultra



The Roadster II 56 Ultra's multipurpose speakerphone capability turns your PC into a hands free telephone (Speakerphone). Your computer can store all your phone numbers and dial with the click of a mouse button.

On the NetComm Communication CD you will find all you need to make the most of your modem including user guide communication software, drivers, cool games and much more.

STOCK CODE: NET138

$259

USB



The Roadster II 56 USB incorporates the latest serial bus technology known as USB (Universal Serial Bus). USB is an evolutionary step up from current serial ports, offering higher throughputs, TRUE Plug & Play and Auto Setup. It also does away with the need to use an external power supply, as the USB port of the computer now supplies the power to the modem directly.

Note: 56Kbps is a download speed only, 33.6 Kbps is the maximum upload speed. Download speed are subject of telecommunication carrier service.

STOCK CODE: NET028

$265

Xircom RealPort Integrated PC Card Family

Flexible solutions for virtually any mobile communications environment

- Innovative built-in connector system eliminates external cables - no more broken or lost cables and broken pop-out jacks!
- Full-featured 16-bit and 32-bit PC cards provide 10Mbps and 100Mbps Ethernet, high-speed 56K modem and telephone handset pass-thru connections.
- GlobalACCESS modem and ISDN capabilities, as well as wireless data support for GSM and AMPS cellular networks enable the most reliable connections anywhere in the world.

XIR048 RealPort Ethernet 10/100 + Modem 56 ..$649



XIR063 RealPort Ethernet 10/100$279



XIR064 RealPort Modem 56$259



Bradley



All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

Order Form

INTERNATIONAL SOFTWARE WAREHOUSE Pty. Ltd.

EVERYTHING FOR YOUR PC - DELIVERED NATIONWIDE!

Please Read Our Terms & Conditions

All orders are subject to our full terms and conditions of sale. If you would like to see a copy of our terms and conditions of sale prior to purchasing, please call our customer service department on the number below.

ORDERING:- All prices and offers are subject to change and availability. Errors and omissions excepted. All prices include Sales Tax. We do not charge credit cards until the goods are available for despatch. Please allow ten working days for cheque clearance. Goods ordered by fax or post will be charged at the current price on the day of receipt. For out of stock items, delivery dates given are only estimates.

CREDIT ACCOUNTS:- Accounts may be opened for Govt. Depts, Education and selected incorporated businesses, subject to status. Initial order value to open accounts must be in excess of $500. Credit account orders are only accepted on official stationery by fax or post. Credit accounts must be paid strictly within 30 days, and we reserve the right to withdraw credit [illegible].

WARRANTY AND RETURNS:- Only Australian sourced goods are supplied. Goods are not supplied on a trial basis, please check specification and compatibility with the manufacturer prior to purchasing. Although our staff can offer advice, they cannot confirm compatibility. In the case of faulty goods, please contact our customer service department who will make arrangements for replacement. Such arrangements may involve you dealing with the manufacturer directly. If, within 30 days of purchase, but before opening the product, you decide the product is unsuitable please call us to arrange a returns number. We will refund the cost of the item minus a 15% restocking fee. We cannot accept non-faulty opened software for return, under any circumstances. All returns must be authorised by us, and must be returned in suitable packaging, bearing our returns number on the outside. Returns not complying with these terms will be refused. Where a manufacturer offers a money back guarantee, this will normally involve you sending the product back directly to the manufacturer, who will process the refund themselves.

PRICE PLEDGE:- Refers to Australian products available ex-stock. We will beat the advertised total cost (including delivery) subject to not selling below our cost price. We reserve the right not to beat prices or liquidated, end of line or OEM items, and will not match prices that have been printed incorrectly. The price pledge is only available at the time of ordering.

SPECIAL OFFERS AND FREE GIFTS:- All special offers are subject to availability, and may be in promotional packaging (packaging may refer to boxes, manuals, etc.) All photographs are for identification purposes only. Please remember to choose a free gift when ordering. If no gift is specified, none will be sent.

Bodyworks V6



BOD010

Only $19

The complete multimedia reference and learning tool for the human body.
Whether you are looking for an in depth answer to a question, or just want to learn more about the human body - Bodyworks is the most educational way to do it.

Memory



See p38 for more details.

40x CD ROM

Unbelievable. A blistering 40x CD drive (6000Kb/sec data transfer rate) for under $100!

Only $99



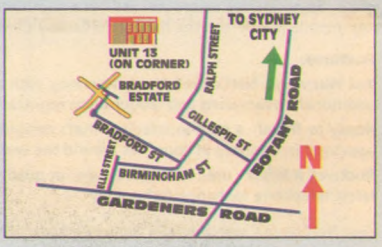
OFF006 **$99**

DELIVERY INFORMATION

DUE TO INSURANCE REASONS GOODS CANNOT BE SHIPPED TO P.O. BOXES

Anywhere in Australia up to 3kg	$6.95
Anywhere in Australia 5kg-20kg	$9.95
Anywhere in Australia over 20kgs	$24.95

All metropolitan areas are overnight delivery. Rural areas take 1-3 days. Orders over 20kgs are delivered road freight, & will take 1-4 days depending on location.



Order by telephone on 1300 300 003 or 02 9700 8800 or facsimile on 02 9700 8801. Corporate orders are welcome!

Cut out or photocopy and send to:
International Software Warehouse Pty., 13 Bradford Estate, 10 Bradford Street, Alexandria, Sydney, NSW 2015

Please tick this box if do not want to receive regular catalogues from Software Warehouse ☐

Qty.	Reference	Description	Price
1	FREE GIFT	Don't forget to ask!	FREE
		Delivery	
		TOTAL	

Please charge my VISA / MasterCard / AMEX / Bank Card ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐ Exp. Date ☐☐/☐☐

Remember! free gifts are not sent unless requested.

Signature _____ Name _____ (Company Name) _____ Tel No. (Daytime Only) _____ Fax No. _____

Address (N.B. No P.O. Boxes) _____ Post Code _____

Please indicate where you heard about us...
☐ APC ☐ PC @uthority ☐ PC Buyer ☐ PC User ☐ PC World ☐ Mailer ☐ Other (specify) _____

All prices INCLUDE sales tax. Prices subject to change, see page 48 for terms & conditions.

For the cost of a local call! **Orderline 1300 300 003 or 02 9700 8800**

Sales Lines Open 9am 'til 6pm Monday to Friday and 10am 'til 3pm Saturday.

VISA MasterCard

Intelligent Printing Systems Pty Ltd

Shop 2, 66 Clark Road, North Sydney NSW 2060, Phone (02) 9923 1777 Fax (02) 9923 2226

Build Your Own Computer On-line

http://www.ipspty.com.au/

intel inside pentium II xeon PROCESSOR

intel inside pentium III

PC MAGAZINE EDITORS' CHOICE

Building Computers since 1990



- Choose Exactly what you want: (YOUR DREAM MACHINE) A small Home System or the most sophisticated Server
- Latest Price & Product Information (updated daily)
- Delivery time = 2-3 days
- Australia wide, underwritten On Site Warranties

All IPS Systems include Tyan USA, Mainboards

DVD-333 $1999
Tyan Tsunami-BX M/B
Intel Celeron 333Mhz
64Mb 100Mhz SDRAM
AGP Creative Blaster 4Mb
15" Mitsubishi Monitor
4.3Gb Ultra ATA-66 H/Disk
3.5" FDD & 4.8x DVD Kit
Creative Sound, Speakers
Keyboard & ScrollMouse
MS Windows98

Pentium III $2790
Tyan Tsunami-BX M/B
Intel Pentium III 450MHz
64Mb 100MHz SDRAM
AGP Intel740 8Mb
15" Mitsubishi Monitor
6.4Gb Ultra ATA-66 H/Disk
3.5" FDD & 40x CD-ROM
Creative Sound, Speakers
Keyboard & ScrollMouse
MS Windows98

Pentium III $3999
Tyan Tsunami-BX M/B
Intel Pentium III 500MHz
128Mb 100MHz SDRAM
AGP Creative TNT 16Mb
17" Mitsubishi Monitor 0.28
10Gb Ultra ATA-66 H/Disk
3.5" FDD & 40x CD-ROM
Creative PCI-128,Speakers
Keyboard & ScrollMouse
MS Windows98

VideoRaid-400 $4790
Tyan Tiger-100 Dual M/B
1 x Intel Pentium II 400MHz
128Mb 100MHz SDRAM
AGP D/Viper V550 16Mb
17" Mitsubishi Monitor 0.25
20Gb Ultra ATA RAID System
3.5" FDD & 40x CD-ROM
Creative Sound, Speakers
Keyboard & Logi Mouse
Windows NT Workstation

LVD-450 $5150
Tyan Tiger-100 Dual M/B
1x Pentium II 450MHz
128Mb 100MHz SDRAM
AGP D/Viper V550 16Mb
17" Mitsubishi Monitor 0.25
9.1Gb LVD SCSI H/Disk
3.5" FDD & 40x CD-ROM
Creative Sound, Speakers
Keyboard & Logi Mouse
MS NT Workstation

Xeon-450 $6999
Tyan Thunder-X Dual M/B
1x XEON 450MHz/512K
128Mb 100MHz SDRAM
AGP Matrox G200 16Mb
17" Mitsubishi Monitor 0.25
9.1Gb LVD SCSI H/Disk
3.5" FDD & 32x SCSI CD
Creative Sound, Speakers
Keyboard & Logi Mouse
Windows NT Workstation

For Pentium III & Xeon Systems call

Protect Data Against Drive Crashes Everytime You Save

Never loose your database, accounting or data again !
Never ever change a backup - tape again !
And you never need a disaster recovery service again !

Traditional methods can be too time-consuming, clumsy or even unreliable for most users. The smarter way is to use DriveDefender with a second low cost Ultra DMA hard disk drive. It keeps the PC working even if one drive fails and lets the user replace the drive whenever you want. It is the quickest real time solution for data protection yet.

- *Saves data to second hard drive every time you save*
- *Continuous operation even if one drive fails*
- *Works at maximum drive speeds*
- *Recognizes drives up to 128gb*
- *Rebuilds data on replacement drive in the background*

STARTING FROM $520

FASTTRAK IDE RAID Outperforms SCSI *

Now users of audio/video editing, graphics imaging multimedia, CAD and entry-level network server environment can ride a new concept of low cost mass storage performance. IDE RAID a low cost, flexible storage solution that outperforms Ultra Wide SCSI. FastTrak delivers up to 25MB/Sec sustained data transfer. This RAID 0,1, 0/1 host adaptor ends disk bottlenecks caused by physical read/writes with a multiple data channel and drive access.FastTrak means no more loss of data even at the highest transfer rates.

FastTrak supports 4 or 8 Drives up to 128GB



$250

SCSIULTRA80 $440

LVD 80MB / sec.



SCSIULTRA40
SCSI-UW 40MB / sec.
$215

Xconnect

Converts Internal IDE Device to External Unit 2-3x Faster Than Parallel Port Devices

$280

TYAN

BX-GX Mainboards
From - $260

Ultra66 PCI Controller

Two-to-three times faster than other IDE drives
Only controller/cable combination to support 66MB/sec burst data transfers of Ultra ATA/66 drives, separate device timing per port allows running drives at their highest rated speeds
Backward compatibility supports UDMA66, UDMA33, EIDE, Fast-ATA & ATAPI devices



$Call

Pricing Includes sales tax. We ship Australia-wide. E & O exempt. The brand and product names are trademarks of their respective companies. Pricing based on cash. A handling charge of 2% for credit card purchases applies.

If you have questions about Web services, digital photography, Mac OS or PC hardware, you'll find some answers here.

Questions and answers



Buying Web Services

This is a businesslike guide about how to choose and pay contractors to build your Web site and it is appropriately subtitled 'The survival guide to outsourcing'. Unfortunately, the author wrote the book solely for a US audience, which means Australian readers will be alienated by the many North American examples and the assumed scale of the marketplace. Legal information and advice on expenditure decisions and resource availability contained in Buying Web Services do not necessarily apply in Australia.

On the other hand, it's cheaper to buy Web space in North America and, thanks to the Web's lack of borders, many Australian businesses do just that. There are also plenty of chapters with useful, if rather dry, information that can be applied to the local market to help you avoid the cowboys.

While JP Frenza is credited as the author, his main task is to introduce a collection of essays by individuals who have been involved in the Web building process or on its periphery. There are also transcripts of round-table discussions between them. The emphasis is on maintaining coordination with Web contractors to minimise the risks of creating a dud site. Frenza's background is in non–profit businesses, so you can be sure plenty of attention is paid to affordability.

The book makes some good points about whether certain businesses are really ready for a major online presence, and about the pros and cons of inhouse Web development. It's hard to recommend a book that's so focused on a foreign market. Still, it's good to see someone tackling Web outsourcing as an important issue on its own, rather than just incorporating such advice into a Web development title.

Simon Vandore

Author	JP Frenza
Publisher	Wiley Computer Publishing
Distributor	Jacaranda Wiley
Phone	(02) 9805 1100
Price	$85
ISBN	0-471-31289-4
Rating	★★☆

Guide to ratings

★	Sydney summer: You must be joking
★★	Louise Sullivan: Just gets away with it
★★★	The IOC: More to it than meets the eye
★★★★	King Abdullah: Trying to fill leader's shoes
★★★★★	Natalie Imbruglia: Best of British

Digital Photography Answers!

The subtitle for this book is 'Certified tech support'. Sadly, it isn't quite clear which is the certified aspect: the book, the author or the answers? Who knows?

The confusion continues. The cover strapline claims you get a whole book of answers for less than the price of one support call. Now support calls may be expensive in the US, but $US24 for one call seems a bit steep.

To be honest, the emphasis on the US market once again throws this title a bit askew for locals. Camera prices, photo services, copyright and even certain model information are simply not applicable in Australia.

But the book is well laid out with a sensible progression through camera choice and use, to subject, lighting and peripheral choice, as well as storage, editing, Internet use and printing. And there is plenty of material. Over 500 pages with lots of illustrations, tips and diagrams. Some of the photo reproduction is very grainy, however, and not at all useful for illustrating the fine changes of detail explained in the accompanying text.

All the chapters start with a brief introduction, before plunging straight into Q&As. The advantage of this approach is that there are direct answers to many of the niggling problems related to matters such

as subject placement, image correction and file exchange. But in terms of learning about how digital cameras work, their use and making the most of the bundled software, this approach is less satisfactory than an explanatory chapter with a how-to roundup at the end.

Overall, a useful textbook for courses teaching the basics to potential digital photographers. For those who already have a digital camera, it isn't great value.
Jeremy Torr

Author	Dave Johnson
Publisher	Osborne McGraw-Hill
Distributor	McGraw-Hill Book Company Australia
Phone	(02) 9415 9888
Price	$44.95
ISBN	0-07-211884-9
Rating	★★

Mac OS 8.5 Black Book

To some extent, this book is more of a Macintosh title than a Mac OS one. For example, it discusses the types of RAM needed in different models, and there's a catalogue of Macs from the original model to the beige G3s.

Each chapter provides a discussion of its topic, presents relevant technologies and products, and then delivers answers to specific questions such as how to share files and folders.

Overall, the range of material is comprehensive, but some important information is omitted. For example, readers are warned that a clean Mac OS reinstallation involves the tedious job of moving items from the old System Folder to the new, but there's no mention of the tools, such as MOSH and Conflict Catcher, which ease the process.

There is some very useful material on Mac/Windows integration, so it is understandable that DAVE (software providing Windows-style networking for Macs) is discussed and PC MACLAN (AppleTalk networking for Windows) is not. However, MACLAN does deserve a mention.

There's plenty of material about PowerBooks, Internet server applications, AppleScript and Java, and the accompanying CD-ROM carries a good selection of useful utilities and applications.

The list of error codes isn't much use. Other parts are more useful, such as the OT/PPP errors (for instance, -7111 means 'the password is invalid'). The guide to HTML could be useful, but seems out of place in this book.
Stephen Withers

Authors	Mark Bell and Deborah Suggs
Publisher	Coriolis
Distributor	Woodslane
Phone	(02) 9970 5111
Price	$79.95
ISBN	1-57610-304-8
Rating	★★★

Understanding Personal Computer Hardware

Understanding Personal Computer Hardware is aimed at people who are only basically computer literate but hungry to know more. From inception to layout, this title is more a reference work than an easy-to-follow guide to computer hardware.

Explanation of topics is extremely detailed, and backed up by a series of hardware and software-related experiments, although how many people will benefit by using debug to make their PC speaker warble is debatable. Some of the experiments are also reliant on a copy of QBasic, which even the author notes isn't shipped with any Windows 95 version. The book's verdict? Oh well, you won't be able to do those experiments. Too bad.

What makes the book a worthwhile purchase is its in-depth examination of topics that a lot of other guides to computer hardware skip over. Everything from parallel port standards to the physical characteristics of hard drives and beyond is examined in minute detail. This is great for reference purposes, but not so good if you're simply looking for details on the basic differences between SCSI and EIDE drives. The illustrations are well done, if a little basic — it may be hard to match some of the simpler diagrams with the variety of hardware out there.

For a guide that promises "Everything you need to know" it certainly delivers, but sorting out those sections you really do need to know from the wealth of detail could be a bit of a chore.
Alex Kidman

Author	Steven Roman
Publisher	Springer
Distributor	D A Books & Journals
Phone	(03) 9873 4411
Price	$64.50
ISBN	0-387-98531-X
Rating	★★★

Correction

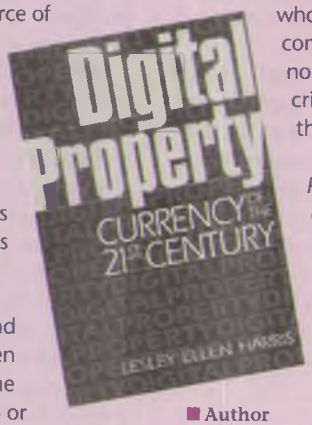
In the March issue of Bibliofile, the price and ISBN for *The Australian Internet Book* were published incorrectly. These should have been $39.95 and 1875889116. Also, the ISBN for *ISP Survival Guide* should have been 0471314994. Our apologies for any inconvenience.

Off the Shelf

Title	Author	Publisher	Distributor	Phone	Price	ISBN
The iMac for Dummies	David Pogue	IDG Books Worldwide	Woodslane	(02) 9970 5111	$39.95	0-7645-0495-9
SAP R/3 System Administration	Liane Will	Sybex	Woodslane	(02) 9970 5111	$99.95	0-7821-2426-7
Master Photoshop 5 Visually	Ken Milburn	IDG Books Worldwide	Woodslane	(02) 9970 5111	$89.95	0-7645-6045-X
Client/Server Survival Guide 3/e	Robert Orfali, et al	Wiley US	Jacaranda Wiley	(02) 9805 1100	$85.00	0-4713-1615-6
The Complete Network Upgrade and Maintenance Guide	Mark Minasi, et al	Sybex	Woodslane	(02) 9970 5111	$109.95	0-7821-2259-0
Networking Home PCs for Dummies	Kathy Ivens	IDG Books Worldwide	Woodslane	(02) 9970 5111	$54.95	0-7645-0491-6

Perspective: Netting the future

Digital Property: Currency of the 21st Century



Determining the value of intellectual property has long been a source of bewilderment. Why, for example, was Microsoft prepared to pay $4 million for the rights to the Rolling Stones' 'Start Me Up' to launch Windows 95? How was that figure derived? It was certainly evidence that there is tangible value in intangible property.

In her book, copyright and new media lawyer Lesley Ellen Harris attempts to address the impact of digital property — or what she refers to as the "coming of age of intellectual property" — on business, home and recreation. The result is an excellent introduction to this new world, and the issues surrounding the purchase, sale and value of digital property.

Introduction is the key here. Harris wrote this book for those who are looking for clarity and an understanding of how to leverage entrepreneurial opportunities on the Internet. She does not claim the book is suitable for those with an intimate understanding of the digital economy, nor does she attempt to address issues at this level. *Digital Property* provides a philosophical discussion on the value of digital property, and offers simple guidelines on selling, licensing, piracy, legal protection and copyright.

There is also an abundance of useful Web site references throughout the book. The preface notes that while every effort has been made to keep the book as current as possible, it is likely that many URLs will no longer be valid, and recommends using a search engine to locate similar sites. A noteworthy acknowledgement. To address the issue, the author maintains a Web site to allow readers to access the latest updates.

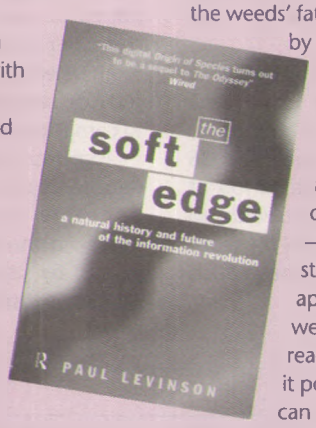
I have only two criticisms. First, chapter six includes a series of quizzes on copyright law to help you determine your knowledge level. After completing the questionnaires, I was disappointed to find that the answers were not provided. While Harris claims the chapter will provide you with the underlying principles to answer the questions yourself, I found it falls far short, and I am still left with a number of unanswered questions. One example in the book is, "Who owns the work in a computer program written by a freelance programmer, adapted by an employee, then licensed to a sister company who then converts it to another computer language?" I'm still none the wiser. The second criticism is that the sequence of the chapters is illogical.

Overall, however, *Digital Property* is an easy-to-read, entertaining book. This even applies to the legal sections — which is commendable considering the book was written by a lawyer!

Cathie Kennedy

Author	Lesley Ellen Harris
Publisher	McGraw-Hill
Distributor	McGraw-Hill Australia
Phone	(02) 9417 4288
Price	$29.95
ISBN	0-07-552846-0
Rating	★★★☆

The Soft Edge



In *The Soft Edge*, subtitled "A natural history and future of the information revolution", author Paul Levinson compares the development of media and information technology to an evolutionary tree. It started with the invention of the phonetic alphabet in ancient Egypt, and has evolved to print and hypertext, and will possibly rise to the use of artificially intelligent robots in space. Darwin's theory of natural selection is frequently used as a metaphor for cultural evolution, but it isn't always successful.

Media, Levinson argues, have been 'selected' by humans to become more like human experience and more democratic. While all consumers of speech, the fundamental human communication system, are also its producers — we can talk back — this is not true for writing. The invention of writing alienated vast numbers of people from its production and consumption, and allowed hierarchies to emerge which controlled access to the reading and writing of text. The invention of the telephone went some way to restore the interactivity of speech (dialogue), even over long distances. The invention of word processing and the Internet have allowed text to become just as interactive as speech — members of a newsgroup can consume and produce text effortlessly. At the top of this evolutionary tree is artificial intelligence.

Levinson argues that new media often have unintended consequences, unforeseen by their inventors, and can even be revolutionary. The printing press is the most obvious example, as it broke the Church's monopoly on literacy, and enabled the Enlightenment institutions of science, nation-states and capitalism. New ideas, he argues, require supportive environments in order to survive and drive cultural evolution. Luther's heresy that people should read the Bible for themselves had been said before, but it was only successful when the printing press made copies of the Bible more accessible. New media have always been seen as threatening: "new information technologies are routinely castigated as debauchers of earlier informational styles and values". This was as true of the printing press as it is of the Internet.

The current debate about Internet censorship is compared to weeding a garden: can weeds be controlled without damaging the flowers? Levinson argues that the weeds' fate should be decided directly by the people, not by governments. However, as ecologists know, weeds are simply plants out of place — escapees from gardens or agriculture which thrive in disturbed areas like roadsides — and are less common in stable ecosystems. Although applied inappropriately, the weed metaphor suggests another reading of the history of media. Is it possible that weeds (heresies) can emerge more easily in disturbed zones (new media), and even form the canopy (become dominant) as the ecosystem stabilises? If so, the fate of old publishers and broadcasters moving online will be interesting viewing.

Glenn Phillips

Author	Paul Levinson
Publisher	Routledge
Distributor	Jacaranda Wiley
Phone	(02) 9805 1100
Price	$32.95
ISBN	0-415-19772-4
Rating	★★★★

Sex, science, spelling and a good sinking can all be found in Interactive this month.

A life on the ocean wave

James Cameron's Titanic Explorer

This CD-ROM is a superb example of Fox Network's cross-promotional skills. Having cashed in big-time on the film, the Fox Interactive team has put together a CD that plays extensively on the film's appeal — and to be honest, I was expecting a mere clone that added little to the Titanic's biography.

But instead of simply slapping some film scenes and a little voice-over on a CD, the authors have comprehensively researched the events preceding and following the tragedy. Even more impressive is that it doesn't mention Leonardo DiCaprio even once. Bravo!

Inside the very slickly produced box nestles a useful instruction booklet and a three-CD pack, which boots up with a slightly fussy menu interface and a picture of the great lady herself. The discs split the story into three sections — the first sets the scene of the 'Golden Age' of travel, followed by the actual collision and sinking of the ship, and the last disc tells of the rescue and subsequent inquiries and consequences. There is a lot of film footage masquerading as reality, but the depth and accessibility of the subject matter is beyond reproach.

The screen layout is better than average, with a cinemascope-style widescreen video area topped and tailed by menu options and buttons for the numerous cross links — much better than the usual 'window in a window' layout. If you saw the film this is a superb adjunct, and well worth the asking price.

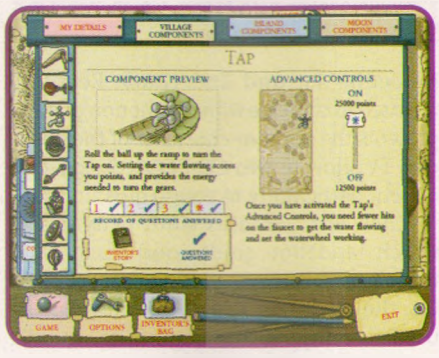
Jeremy Torr



Publisher	Fox Interactive
Distributor	Electronic Arts
Phone	(02) 9955 7744
Price	$49.95
Requires	Pentium 166, Windows 95, 16M RAM, 4x CD-ROM drive, 30M hard disk space, SVGA
Rating	★★★★

Pinball Science

Pinball Science casts you and your child on a mission to reinvent the wheel . . . and the spring, the flipper, and, for some reason, the woolly mammoth. It all aids the great inventor, who has unfortunately become trapped in orbit around the moon. The only way to save him is to recreate his "great works", in this case, three enormous pinball tables.



In order to create the pinball tables, you have to find out how they work. This involves researching the individual tables' components and then answering a science-based question on the item in question — there's an awful lot of elementary physics involved. Research all the items on a given table, and the table is yours to play according to your own design. Get all three tables, and you free the great inventor.

Pinball Science has been put together exceptionally well. You can choose difficulty levels when you begin the game, so younger children can have as much fun as older ones, and at the same time get basic scientific principles drilled into them. The voice explanations are clear, and the accompanying animations (mainly of the great inventor's pet woolly mammoth) are cute. It's actually quite easy to manufacture the first table, which is useful as a hook for further explanation, and most of the questions are well organised and phrased.

You are also given some choice as to where the pinball features (springs, targets and the like) are be placed, so it's also possible to experiment to find out what works best, and why. Highly recommended.

Alex Kidman

Publisher	DK Multimedia
Distributor	Roadshow Interactive
Phone	(02) 9552 8700
Price	$49.95
Requires	Pentium 75, Windows 95, 16M RAM, 4x CD-ROM drive
Rating	★★★★

Dr Feelgood Hosts Sex

Have you ever walked into a shop and felt that, despite an enticing window display, all the goods were just a little bit downmarket and near their use-by date? That's how this CD-ROM makes you feel.

Based on the Channel Nine program and the Dr Feelgood radio series, the CD promises "aspects of sexual health we all want to know about". In practice, it makes extensive use of talking heads discussing hard to recognise fleshy parts, pink rubbery things, and soft-focus rustling sheets. So for the real smut-meisters, it's a bit of a letdown.

The initial menu allows the would-be sex expert to choose from a variety of sexual practice, woes, anticipations and associated plumbing advice. All have sub–sections, but in some, the legal eagles have obviously rattled their asexual sabres and cried 'no', because although the narration is there, the window which should contain images of throbbing dermis is a disappointing black. Censored, and without even a still image to salve the loss.

Similarly, some of the sections, such as the one on 'butt-plugs', are treated with demeaning humour rather than useful advice. Another minor fault is that the material comes from TV or

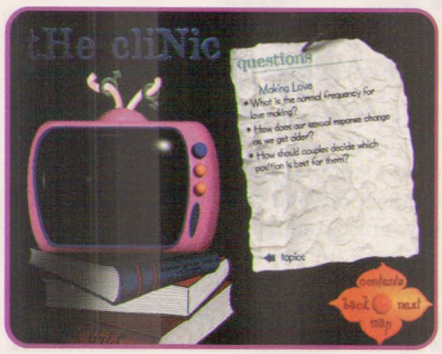
Interactive News

◉ MP3 (MPEG Audio Layer-3) music files have been around for a while now, and though it has become the format of choice for 'music pirates' online, there are also many more legitimate uses. Web portal Lycos has jumped upon the MP3 bandwagon recently, and in a joint venture with Norwegian download site FAST will be offering a specially tailored search engine for MP3 files. The music industry still has concerns about the proliferation of MP3 files and the opportunities this presents for copyright violation, but it seems that more large companies are beginning to embrace the standard.

◉ In related news, a confusing announcement was made recently concerning the release of the new 'MP4' standard. In Australia, a joint venture between OzEmail and online music store CMM announced the release of MP4 audio tracks through a partnership with US company Global Music Online (GMO). On CMM's Web site (at http://www.cmm.com.au/mp4/), users can download a small number of files from a selection of popular artists, with no external player or software required to listen. However, all is not quite as it seems. GMO has merely licensed the a2b music format and combined this with an executable file, dubbing the result 'MP4 files' — which are not compatible with MPEG 4 Audio. Nevertheless, it seems that many are assuming that this format is the successor to MP3 (including some media analysts), and there has been a backlash over the 'misrepresentation'. CMM doesn't seem concerned, however, as its main page states that "as far as we're concerned this just means more exposure for all the excellent Oz music involved".

◉ Oh dear — a new DVD venture, Fire Horse Entertainment, has been launched in the US, with the aim of making use of new media such as so-called 'interactive DVD entertainment titles' to target a female audience. "[Our] titles combine dramatic content and immersive interactivity with the realism and video quality that only DVD can provide," said producer Gillian Bonner. Immersive interactivity, eh? Wonder what that means . . . "Unlike regular TV where commercials are forced on you, our format allows the viewer to see only commercials for products she's interested in and then she can purchase them right there and then, no waiting!". Combining the best of interactivity with a progressive and enlightened view on gender in the 1990s, look out for Fire Horse Entertainment coming to a store near you. Hopefully never!

Gareth Jones



radio and doesn't really suit the CD-ROM format.

There are one or two areas which might be of use to the sexual novice, and the advice on STDs is easy to access and helpful. Compared to the excellent Dorling Kindersley Ultimate Sex Guide, however, it is decidedly flaccid in both content and presentation. Overall, it would be unlikely to either stimulate or elucidate sexual prowess in anyone confident enough to walk into a shop and buy it.

Jeremy Torr

■ Publisher	Sprint Software
■ Distributor	Sprint Software
■ Phone	(03) 9427 9996
■ Price	$29.95
■ Requires	486, Windows 95/98, 8M RAM, CD-ROM drive, SVGA
■ Rating	★★

Madeline 1st and 2nd Grade Reading Deluxe

Madeline 1st and 2nd Grade Reading, released to coincide with the motion picture, presents the popular character of the books and TV show in two CD-ROMs designed to appeal particularly to young girls.

Each disc contains eight activities in which Madeline guides and encourages the school beginner to have fun reading. On the first disc, several games can be used to reinforce the beginning, middle and ending letter sounds, rhyming and compound words that are usually learnt at this age. Spelling accuracy is developed in a crossword game by matching pictures to given letters, and a scrapbook activity increases vocabulary through a labelling exercise of both objects and concepts. Listening to clues and deductive reasoning must be used to find Pepito, Madeline's hidden friend, and sentence writing is encouraged as children choose ridiculous answers for Lord Cucuface to give via the teleprompter. Cards and invitations can be created using a choice of pictures, decoration and words or by typing in text.



Disc two contains most of the same games but at a higher skill level, and there is a focus on letter blends, synonyms and antonyms. Activities include comprehension through simple stories and questions, an alphabetising game, and learning parts of speech with the help of colour coding.

Madeline 1st and 2nd Grade Reading has great charm, beautiful production and is very easy to use. Each activity is cleverly self-correcting with a reward for success. The three levels of skill in every activity mean the product grows with the child or can be used by different ages. The individual progress charts and printable certificates would be useful both at home and at school. Terrific value for money.

Catherine Howard

■ Publisher	The Learning Company
■ Distributor	Roadshow Interactive
■ Phone	(02) 9552 8700
■ Price	$49.95
■ Requires	486/66, Windows 95/98, 16M RAM, 2x CD-ROM drive, Sound Blaster or compatible.
■ Rating	★★★★

Survey

Win a Brother MFC-7160C Colour Multi-function Centre valued at $1,099



Win a Brother MFC-7160C Colour Multi-function Centre valued at $1,099.

The MFC-7160C combines colour copier, printer, scanner, video printer, PC fax, a speaker phone, plain paper fax and message centre.

There are also 10 second prizes of a one-year subscription to *APC* magazine, valued at $65 each.

You can enter via the Web at apcmag.com/survey/survey99
or by mail or fax addressed to:
APC Reader Survey, c/o PricewaterhouseCoopers, Attention: James McElvogue, GPO Box 2650, Sydney, NSW 1171
fax: (02) 8266 9999.

apcmag

Name:

Daytime phone no:

Email address:

Postal address:

State:

Postcode:

Country:

Sex: ❑ Male ❑ Female

Age:
❑ Under 20 ❑ 20-29 ❑ 30-39 ❑ 40-49
❑ 50-50 ❑ 60+

Income before tax:
❑ under $25,000
❑ 25,000 — 34,999
❑ 35,000 — 49,999
❑ 50,000 — 74,999
❑ 75,000 — 99,999
❑ 100,000 — 149,999
❑ 150,000 — 199,999
❑ 200,000+

Please tick if you object to being contacted for follow-up questions or other surveys: ❑

1. Which sections of *APC* do you:
a) read or use every issue
b) read occasionally
c) don't read at all
d) prefer to see more of
e) prefer to see less of
(please tick all that apply)

a❑ b❑ c❑ d❑ e❑
News Roundup and Analysis

a❑ b❑ c❑ d❑ e❑
First Take

a❑ b❑ c❑ d❑ e❑
Editorial

a❑ b❑ c❑ d❑ e❑
Reader's Say

a❑ b❑ c❑ d❑ e❑
Two Bits (opinion columns)

a❑ b❑ c❑ d❑ e❑
Price Watch

a❑ b❑ c❑ d❑ e❑
Readers' Say

a❑ b❑ c❑ d❑ e❑
Service and Reliability

a❑ b❑ c❑ d❑ e❑
General features

a❑ b❑ c❑ d❑ e❑
Software reviews

a❑ b❑ c❑ d❑ e❑
Hardware reviews

a❑ b❑ c❑ d❑ e❑
Workshop

a❑ b❑ c❑ d❑ e❑
After Hours

a❑ b❑ c❑ d❑ e❑
apcmag.cd — *APC*'s cover CD

a❑ b❑ c❑ d❑ e❑
apcmag.com — *APC*'s Web site

a❑ b❑ c❑ d❑ e❑
APC Newswire — *APC*'s dedicated Australian IT Web news service

2. How long have you been reading *APC*?
Months: Years:

3. How often do you read *APC*?
❑ Every issue ❑ Most issues
❑ Occasionally ❑ Infrequently

4. On average, how many times a month do you refer to a copy of *APC*?

5. On average, how long do you spend reading a copy of *APC*?

_____ hours

6. *APC*'s cover CD — apcmag.cd
a. How often do you use apcmag.cd?
❑ Every issue
❑ Occasionally
❑ Never accessed

b. Have you accessed any of the ISP starter kits on the CD?
❑ yes ❑ no

c. Have you used trial software from the CD?
❑ yes ❑ no

d. If yes, have you ever purchased software or ISP services you have trialled from the CD?
❑ yes ❑ no

7. Internet use
a. Are you an Internet user?
❑ yes ❑ no

b. If yes, how often would you access the Internet?
❑ Several times a day
❑ Daily
❑ Several times a week
❑ Once a week
❑ Once a month
❑ Infrequently

c. What do you use the Internet for?
❑ Core part of business
❑ Direct sales
❑ Marketing/PR
❑ Client contact
❑ Email
❑ Intranet/extranet
❑ Business resource

8. Have you ever used, or do you intend to use in the next 12 months, any of the following online products/services:
a) Have used
b) Intend to use
c) Not applicable

a❑ b❑ c❑ Online banking

a❑ b❑ c❑ Bill paying

a❑ b❑ c❑ Shopping

a❑ b❑ c❑ Travel

a❑ b❑ c❑ Shares

a❑ b❑ c❑ Automotive

a❑ b❑ c❑ Research

a❑ b❑ c❑ Employment

9. What is the primary business activity of your company? (please specify)

10. Do you work in an IT-related business?
❑ yes ❑ no

If yes, please tick the applicable categories box:

❑ Manufacturer
❑ Retailer
❑ Distributor
❑ Software developer/programmer
❑ Consultant
❑ Trainer
❑ Reseller
❑ Educator
❑ Other (please specify)

11. What is your job title/position?

12. Do you influence the purchase of technology products or services for your company?
❑ yes ❑ no

13. For which of the following categories do you influence purchase?
❑ All categories
❑ No influence
❑ PCs
❑ Servers
❑ Monitors
❑ Modems
❑ Printers
❑ Scanners
❑ CD-ROMs
❑ Notebooks/laptops
❑ PDAs
❑ Platforms
❑ Desktop OSes
❑ Development tools
❑ Database software
❑ Intranet/extranet
❑ Web development
❑ Networking/ communications
❑ Office productivity software
❑ IT consulting services
❑ Other

14. What is the approximate dollar value of computer/IT purchases with which you were involved?
Last 12 months: _____
Next 12 months: _____

15. Do you have responsibility for:
❑ Final purchase decision
❑ Specifying brands
❑ Specifying configuration

Competition question: Please tell us in 25 words or less how *APC* could be improved.

TERMS AND CONDITIONS

1. Entry is free and open to all residents of Australia other than employees of Brother Australia (ACN 001 392 835) or ACP Publishing Pty Ltd (ACN 053 273 546), their families and associated agencies.
2. The contest closes last mail for paper entries and midnight for electronic entries 30/4/99. The contest will be judged by a panel selected by ACP Publishing Pty Ltd. The judges decision in relation to any aspect of the competition is final and binding on every person who enters. No correspondence will be entered into. The best reply to the final survey question will be awarded the prizes. Chance plays no part in selecting the winners. No responsibility is accepted for late, lost or misdirected mail. All entries become the property of ACP Publishing Pty Ltd, the promoter, 54 Park Street Sydney 1028.
3. The prize pool, valued on March 1, 1999, consists of one Brother MFC-7160C valued at $1,099, and 10 subscriptions to *APC* magazine, valued at $65 each. The prizes are not transferable or redeemable for cash. Any change in the value of the prizes occurring between the publishing date and the date the prizes are claimed is not the responsibility of the promoter.
4. Prize winners will be notified by mail and their names will be published in the July 1999 issue of *APC*.

You can be creative or destructive with this selection, take your pick.

Movement of the people

Oddworld: Abe's Exoddus

Abe the Mudokon is back — and he's still a little flatulent.

A sequel to Abe's Oddysee was inevitable given its immense success, and as would be expected, there are more than a few similarities between this latest title and its predecessor. The same flick-screen action is here, as well as the same gamespeak, animation and tumbling off cliffs towards sticky (and yet somehow comical) ends. However, when the original game is as good as Abe's Oddysee, it is not a bad thing. True, it's not as original as it was, but it's still good.

The despicable Glukkons are also back, and this time they're making brew — Soulstorm brew, a potent concoction made from Mudokon bones and tears. Abe finds this out and must spring into action, jumping, climbing, solving puzzles and rescuing Mudokons on his way.

This is pretty much the same as the original game, but there are a number of improvements, the most significant of which is the added influence of gamespeak. In the original, speech was mostly a case of 'Hello. Follow Me'. In Abe's Exoddus, other Mudokons can express their anger and depression, or they can be downright giggly. A quick slap, an apology, and you're on your way. It's also now possible to talk to many Mudokons at once, which leads to more involved puzzles and larger rescues.

It's worth noting that Abe's Oddysee is now available as a budget title, so if you've never played Oddworld, it's a cheap starting point for Exoddus. For those who can't get enough of Abe, the latest incarnation is excellent.

Alex Kidman

Distributor	GT Interactive
Phone	(02) 9902 3000
Online	http://www.oddworld.com/
Price	$69.95
Requires	Pentium 133, 16M RAM, 4x CD-ROM drive
Classification	M
Rating	★★★☆



Microsoft Combat Flight Simulator: WWII Europe Series

You are in a dogfight high in the skies during WWII. 'Bandits. Nine o'clock. Low,' screams from your headset. You bank hard right, and push down the nose of your temperamental Supermarine Spitfire, forcing it into a steep dive. The engine pitch changes as you soar towards your target — four German Heinkel bombers. You squint blindly into the sun in anticipation of the supporting Messerschmitt fighters. This is London, during the height of the Blitz.

Microsoft Combat Flight Simulator (MCFS) places you in the hot seat of a WWII fighter plane flying in some of the most famous air battles in history. It continues the realistic flight model of previous Microsoft flight simulators, but adds the excitement of air combat. You can fly one of eight historic fighters from the airforces of England, Germany and the US.

The attention to realism makes this a successful package. Each plane displays different performance characteristics which supposedly equate to the physics of the real thing. The campaigns are based on historical events from the Battle of Britain and the Battle Over Europe. The settings are rendered in detail, so you can dogfight over famous landmarks.

Choose to fly single missions or enter campaigns where you are briefed on which missions to fly. As you progress through a campaign, you can earn medals and promotions. MCFS also includes a Quick Combat mode — placing you in the middle of the action.

The comprehensive 220-page manual is the bible for playing the game, and it features a flight school that teaches the basics of flight. But it is the Air Combat section where you will need to pay the most attention. It is important to learn the manoeuvres so you can outperform the enemy in the heat of battle. The manual also has detailed information on all the aircraft, as well as some interesting background history of war in the skies during WWII.

As with other Microsoft flight sims, you can import scenery and aircraft from the Internet to customise MCFS, and there's a multiplayer option so you can dogfight with your friends.

Andrew Broadhead

Distributor	Microsoft
Phone	132 058
Online	http://www.microsoft.com/games/combatfs/
Price	$89; $20 cashback for existing Flight Simulator owners
Requires	Pentium 133, 16M RAM
Classification	G 8+
Rating	★★★☆



Lego Creator

Anyone who has ever trodden barefoot on a piece of Lego left lying around the living room floor and then hopped around cursing in agony will appreciate the idea of a virtual Lego set that will leave your big toes free from danger. Lego Creator (one of a number of new



diversions into the software market by the famed Danish toy manufacturer) aims to replicate the experience of building Lego models without the inconvenience of the dog eating your creations or running out of those crucial bricks just before you finish building a 10-storey skyscraper.

Lego Creator can't offer the tactile experience of handling the actual bricks, but it makes up for this by taking advantage of your PC's multimedia capabilities. Lego figures come to life with predefined actions; anything with wheels begins to move in 'play' mode; police sirens wail; and there are even exploding bricks if you have a destructive urge. (There's also a *real* Lego figure, Biker Bob, included in the package for the determinedly physical.)

The interface is simple and consistent, and the recommended age range of 'eight years and up' is about right. The built-in tutorials are particularly good, and there's a range of prebuilt worlds you can experiment with.

Lego Creator's biggest audience may well come not from the pre-teen set but from nostalgic adults (like this reviewer) who want to relive the playthings of their childhood without actually having to clean up afterwards. Whatever the audience, there's plenty to keep you entertained for hours.

Angus Kidman

Distributor	Roadshow Interactive
Phone	(02) 9552 8700
Online	http://www.lego.com/
Price	$79.95
Requires	Pentium 166, Windows 95, 32M RAM, 6x CD-ROM drive
Classification	N/A
Rating	★★★☆

For reviews of Lego Chess and Lego Loco, check into our Web site at http://apcmag.com/gamezone/lego/.

Starsiege: Tribes

Buy this. Buy this. Buy this. Got the message?

If you're a fan of multiplayer online games, or even if you just like the sound of them, this is the one to get. Even though it sat unclaimed on a pile of review games in the *APC* office for a couple of weeks (nobody had heard of it), once it was installed a wave of Tribes addiction swept the office.

Starsiege: Tribes is a first-person shooter with Quake-style controls, but it's set outdoors with jet-packs, vehicles and fortified bases. There is no single-player game, apart from some simple training missions. Via the Internet (or on a LAN), up to 32 players (more if everyone has a very fast machine, such as a Pentium II or Celeron with a Voodoo2) can take part in vast, frenetic battles to control or destroy objectives, capture the enemy's flag, or just duke it out. A huge variety of equipment is available and strategy is key — to win, players must share attack, defence and command roles. Connect to a server with a low ping time, and it performs like a dream.

If you've played the excellent Team Fortress add-on for Quake, you'll have some idea of what's involved — but the consensus among diehard Team Fortress fanatics who've played Tribes is that Team Fortress is dead. Tribes has more depth, better maps, and even voice samples that you can use to bark orders or exclamations ("Shazbot!"). Unfortunately, there isn't one for "Wow, this game rocks!", but that's something you'll often see players type instead.



Games News

◉ Talk of trouble at development house Ion Storm has been going on for quite a while now. But the recent publication of an in-depth feature about Ion Storm board members in a Dallas, Texas newspaper has blown the story into orbit. If you haven't already, go to http://www.dallas-observer.com/1999/011499/feature1-1.html to read the whole thing yourself. It's a great insight into what can happen when egos get out of control and boardroom manoeuvring (and greediness) become more important than the actual production of games. In a move that surprised nobody, Ion Storm quickly filed a lawsuit against the paper in an attempt to have the author, Christine Biederman, disclose where she obtained the extremely damaging Ion Storm internal emails, but their chances seem slim. It used to be about the games, but in these days of mega-million-dollar publishing deals and where big businesses are making moves capitalising on the popularity of computer games, don't expect this to be the only instance of development companies falling apart through in-fighting, deception, paranoia and greed. My prediction is that this is really only the tip of the iceberg, and probably quite tame compared to what's going to follow in the next couple of years.

◉ Recently, the top-selling games for 1998 (in the US, at least) were announced by research firm PC Data. And the biggest seller wasn't one of the crappy Deer Hunter 'games' — yay! Instead, Blizzard Entertainment's Starcraft took out the number one spot. However, of the top 20 sellers, eight games would be classified as 'budget' releases, including titles like Big Game Hunter and Barbie Nail Designer. I shudder to think how the marketing people are going take these results.

◉ Lastly, if you were wondering just how advanced flight simulators have become, try this on for size. During the last fracas between US forces and Iraq, NBC decided to use Jane's Fleet Command to re-enact some of the 'Desert Fox' raids for their viewers. Various maps and 3D object models (fighter planes, missiles, ground forces, and so on) were used to demonstrate what was happening, and NBC was said to have been very impressed with the results, and would consider repeating the process for future conflicts.

Gamespy

There's quite a learning curve involved, but a thorough reading of the manual and a run through the training missions will cut your initial confusion. Soon you will be piloting an armoured personnel carrier onto the roof of an opposing base or leading a raid on the enemy's power generator, while your teammates snipe at the guards from nearby hills.

What the hell, let's just say it — this is one of the best games ever made. Tell the folks you won't be home for dinner.

Simon Vandore

Distributor	Wolf Interactive
Phone	(02) 9417 9600
Online	http://www.tribesplayers.com/
Price	$89.95
Requires	Pentium 200 (or Pentium 166 with 3Dfx card), Windows 95/98/NT, 16M RAM, 150M hard disk space, 2x CD-ROM drive, Net connection
Classification	M 15+
Rating	★★★★★

Baldur's Gate

It was easily last year's most anticipated RPG, but Baldur's Gate only arrived on our store shelves early this year. After the immense hype surrounding the release of what was meant to be the most faithful reproduction of the AD&D role-playing system to date, Baldur's Gate had to achieve a lot to avoid disappointment. Fortunately, it did.

Baldur's Gate follows the journey of an orphan of mysterious parentage (you), from the library of Candlekeep to the city of Baldur's Gate in the western part of the AD&D world of Toril. The story builds very well throughout the game. It is divided into seven chapters and each has goals that you must achieve before you can move on. In between, there are a huge number of side-quests for you to role-play and bash your way through.



Aside from the central character, up to five other characters can join the party. Here comes the really cool part: these extra characters can be controlled by other players across a network, for a true role-playing experience. Characters don't even have to stay in the same screen, they can roam on their own for a certain distance. So while a group of players wander around some shops, a player who is a thief can be out robbing houses in the area.

Baldur's Gate uses a Diablo-esque isometric viewpoint which is very well handled, although pathfinding can be a bit buggy. The area to explore is huge, although a lot of it is wilderness, every area is pre-rendered and unique. You aren't even required to explore most of it, and a large number of the side-quests are purely optional (and require you to role-play your character's ethos).

Combat is controlled by editable scripts, but the action can be paused and minutely controlled if desired. Monsters are finely drawn and spells are truly spectacular.

The game is not without its petty annoyances — the disk swapping between the five CDs (DVD anyone?), time spent wandering in random wilderness, and the relative shortness of the central plot. Overall, though, it is one of the best RPGs ever to grace store shelves. It's definitely up there with Interplay's other recent RPG, the outstanding Fallout 2.

Nathan Taylor

Distributor	Roadshow Interactive
Phone	(02) 9552 8600
Online	http://www.blackisle.com/
Price	$89.95
Requires	Pentium 166, Windows 95, 16M RAM, 4x CD-ROM drive
Classification	M 15+
Rating	★★★★☆

Return to Krondor

The sequel to Betrayal at Krondor is also set in Raymond Feist's highly derivative Midkemia, a world of — exactly as you'd expect — elves, dwarves and dragons alongside the usual thieves, rangers and so on.

In Return to Krondor plot is everything, and as such, it works best as an interactive adventure rather than a complete role-playing game. Viewed from a third-person perspective, your party starts out small and grows in a distinctly linear fashion. In terms of options, you can switch to a more combat-oriented game, but you're still essentially stuck in a single, long-term mission — there's none of the side-quests that usually make or break most RPGs.



All this would be extremely uninteresting if the rest of the package was poor, but for the most part it isn't. The plot is mostly engaging, and the whole graphic approach is appealing, from the fluid combat animations to the simple mouse/keyboard–based movement. The third-person perspective is reviewed via the use of pre-rendered backdrops. This unfortunately leads to some odd movement choices, as you can step onto a pavement that spans the view, only to find you can't actually walk along it. This extends to combat, where working out attack options and ranges can sometimes be a little confusing.

If you're looking for an open-ended-style role-player look elsewhere, but if you want an immersive story-based RPG (or you're a Fiest freak) Return to Krondor is a reasonable buy.

Alex Kidman

Distributor	Dataflow
Phone	(02) 9417 9700
Online	http://www.sierrastudios.com/
Price	$79.95
Requires	Pentium 166, 24M RAM, 4x CD-ROM drive
Classification	G
Rating	★★★

You can find more game reviews this month — including two titles in the Lego series — at http://apcmag.com/gamezone/.

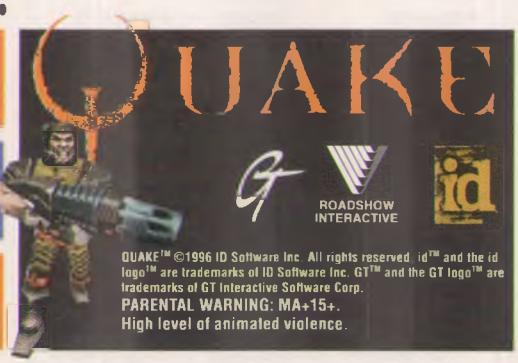


All Dynalink modems include a great *value* **PACK** with free offers from:

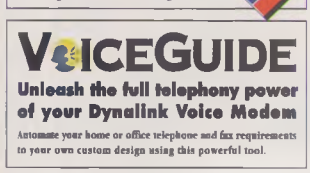
OZEMAIL

COMPUSERVE

MULTIPLAY







From all good computer stores
or call Askey Australia 1800 357 253

Some museums have leapt into the Internet void — exhibits and all.

The classic collector

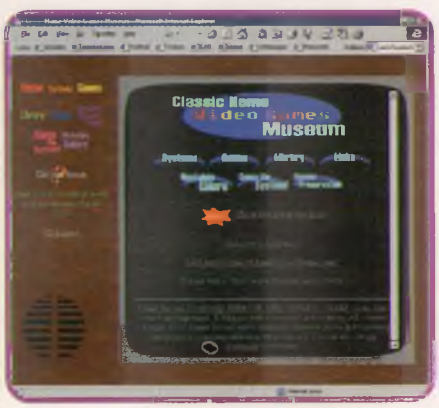
Classic Home Video Games Museum

Games consoles hit the scene in 1972 when the Odyssey system was released. Odyssey used transparent plastic screen overlays in lieu of real graphics, and wasn't a resounding success.

Three years later, Pong arrived and things changed forever. Now it's difficult to see the attraction of batting a crude ball back and forth between two bars of white light, but back then, this stuff was groundbreaking. Games consoles really hit critical mass in the early 1980s, riding shotgun with the growing personal computing revolution, and increasing awareness of computers and games in the popular press. Movies like 'Electric Dreams', 'Tron' and 'WarGames' all capitalised on the growing market for video games and computers.

The early 1990s were also notable for the collapse of the video game market, which followed market saturation of poor quality games and consoles. Shortly afterwards, the market recovered and consoles like the Sony PlayStation have become wildly popular today.

There are, not surprisingly, more than a few sites devoted to classic games consoles. Most of them are enthusiastic but amateurish efforts that aren't really worth revisiting. The Classic Home Video Games Museum makes the grade because it: a) looks like more than five minutes was spent designing the site; b) has pictures and descriptions of old games consoles; and c) is updated on a fairly regular basis.



In a perfect world, a site like this would offer downloads, ROMs (soft electronic replicas of the physical ROM chips inside the game cartridges), and a wide range of emulators to suit your hardware. This site doesn't, but that is because ROMs tend to be protected by copyright and emulation is a legal grey area.

It's unfortunate that copyright holders are predisposed against ROMs being made available online — often the owners have no real interest in the game itself, or its relevance to gaming history. They are interested in making money, and because it's difficult to cash in on obsolete technology, they resort instead to issuing nasty legal letters.

In any case, the comprehensive links page should be an adequate starting place for people who want to find this illegal stuff online. It's not that hard. If you want to keep it legal, the museum includes a short article outlining how and where old games and consoles can be purchased, and includes some links to games dealers.

The most bizarre section of the site is the readers' stories. Think of *Penthouse* Forum without the sex and devoted to games consoles, and you're on the right track. It's truly strange, and illustrates just how weird some people are.

Josh Gliddon

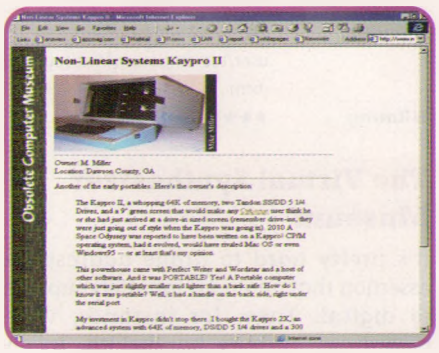
■ **Online** http://ns2.apmtech.com/dbrown/museum/

■ **Rating** ★★★★

Obsolete Computer Museum

The history of computing is largely a study in planned obsolescence, as the Y2K problem well illustrates. The boffins screwing together mainframes with funky names like the IBM System 300 didn't expect them to be in use several decades later. The problem is, they are still in use, which is either a tribute to the boffins' engineering prowess, or indicative of their shortsightedness.

But planned obsolescence "or technological progress, whichever way you want to view it" doesn't instantly make old products useless, as collectors of everything from old cars to valve amplifiers will attest.



Old computers also have a use, even if it's only to collectors, who value their novel technical solutions, the nostalgia associated with a CP/M command line, or the often bizarre cases they came in. The Obsolete Computer Museum is dedicated to preserving the memory of these machines, and the memories of those who still hold them dear.

The most attractive feature of online museums is their easy accessibility. Visiting one doesn't require any travel and they're open 24 hours a day. The downside is that there's often very little interaction, and the pictures often don't do justice to the exhibits.

The Obsolete Computer Museum has both these positive and negative qualities in truckloads. Its host server is reasonably fast, but the quality of the pictures varies. There are lots of computers listed, but the information relies on those who contribute it, so it is not always comprehensive, and, as some of the revisions demonstrate, it isn't always accurate. It's also very static — months often pass between updates. All these factors combine to make the museum a place that you'll visit once, spend a long time reminiscing, and not go back to for months on end. But isn't that exactly what you'd do with a physical museum? How often do *you* visit the National Gallery or the Powerhouse Museum?

Of the 150 computers on exhibit, some are familiar and others make you wonder how they ever made it to market, let alone sold in any quantity. Computers like the Mattel Aquarius, Otrona Attache and Morrow Decision I seemed doomed to failure simply by the ludicrousness of their names, while others, like the Apple

Lisa, were a great idea at the wrong time (and wrong price bracket). But some of the computers listed, like the famous Tandy Model 100, are still in use today, because sometimes good technology just won't go away.

Josh Gliddon

■ Online	http://www.ncsc.dni.us/fun/user/tcc/cmuseum/cmuseum.htm
■ Rating	★★★★

The Virtual Synthesizer Museum

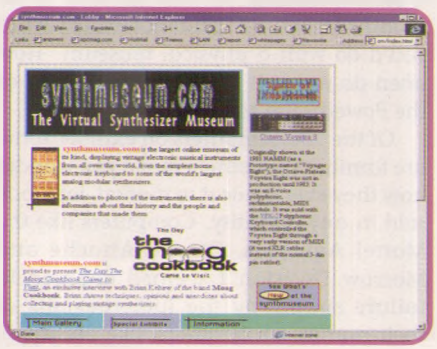
It's pretty hard to argue against the assertion that analog is infinitely superior to digital. Take, for instance, vinyl recordings: infinite bandwidth, lovely warm sounds, cool packaging. The only things CDs have going for them are the psychedelic rainbow colours and portability.

So what could be better than a vinyl record played through a valve amplifier? A recording of an analog synthesiser in the same playback chain, of course! Analog synths got a bad name thanks to the excesses of 1970s prog rock bands like Yes and Genesis, and as a consequence, it was easy to pick up a Moog or even an E-mu in pristine condition for next to nothing.

Those days are over thanks to the rehabilitative efforts of groups like the UK's Stereolab and the Swirlies, and vintage synths now command prices comparable to the vintage guitar market.

Although a Minimoog might be out of the price range of all but the most devoted, sites like the Virtual Synthesizer Museum make it possible to see and read about some of the most interesting electronic instruments ever made.

The site bases its exhibits on the collections held by several 'real' museums in the US, and while it's a bummer there's nothing similar in Australia, it's possible to have a vicarious experience via the site.



In line with the best virtual museums, the Synthesizer Museum is relatively easy to navigate, and has lots of pictures and extensive reading material available. There are several interviews with analog synth luminaries, including one with Dr Joseph Paradiso, who's spent most of the last 20 years building a massive modular analog synth in his basement.

The only aspect of the site that could use some work is the level of interaction. It would be good to be able to download sound files of different analog synths in action, as well as a couple of files that illustrate some of the different capabilities of the equipment (what *is* an envelope filter anyway?) Also, many of the pictures give an idea of what the synth looks like from a distance, but a couple of detail shots wouldn't go astray.

But those things are only minor quibbles, when compared to the overall quality and comprehensiveness of the site.

Josh Gliddon

■ Online	http://www.synthmuseum.com/
■ Rating	★★★★

Surfbaud: Collectors tension

Buffalo Bill, the serial killer in 'Silence of the Lambs', 'collects' victims in order to create a suit made from human skin. Without delving too deeply into serial-killer psychoanalysis, the skin suit — a female suit — is, for Bill, aspirational. He wants to be a woman, he's been rejected from sex-change programs, and he compensates for this in a particularly gruesome manner.

Whether or not Bill would've put his collection on 'show' is open to conjecture; many collectors — be they art collectors, record collectors or car collectors — build their collections for purely private pleasure. A prime example of this is the rumoured multimillion-dollar car collection kept in a climate-controlled warehouse in the British Midlands: very few people have ever seen it, and those that have are required to sign non-disclosure agreements.



Virtual museums and Internet sites devoted to a particular topic are similar in both theme and execution, because they tend to be private ventures. Traditional museums, despite their Internet presence, tend not to create virtual replicas of themselves, perhaps out of fear of cannibalising the audiences that would otherwise make the trek to see the exhibits.

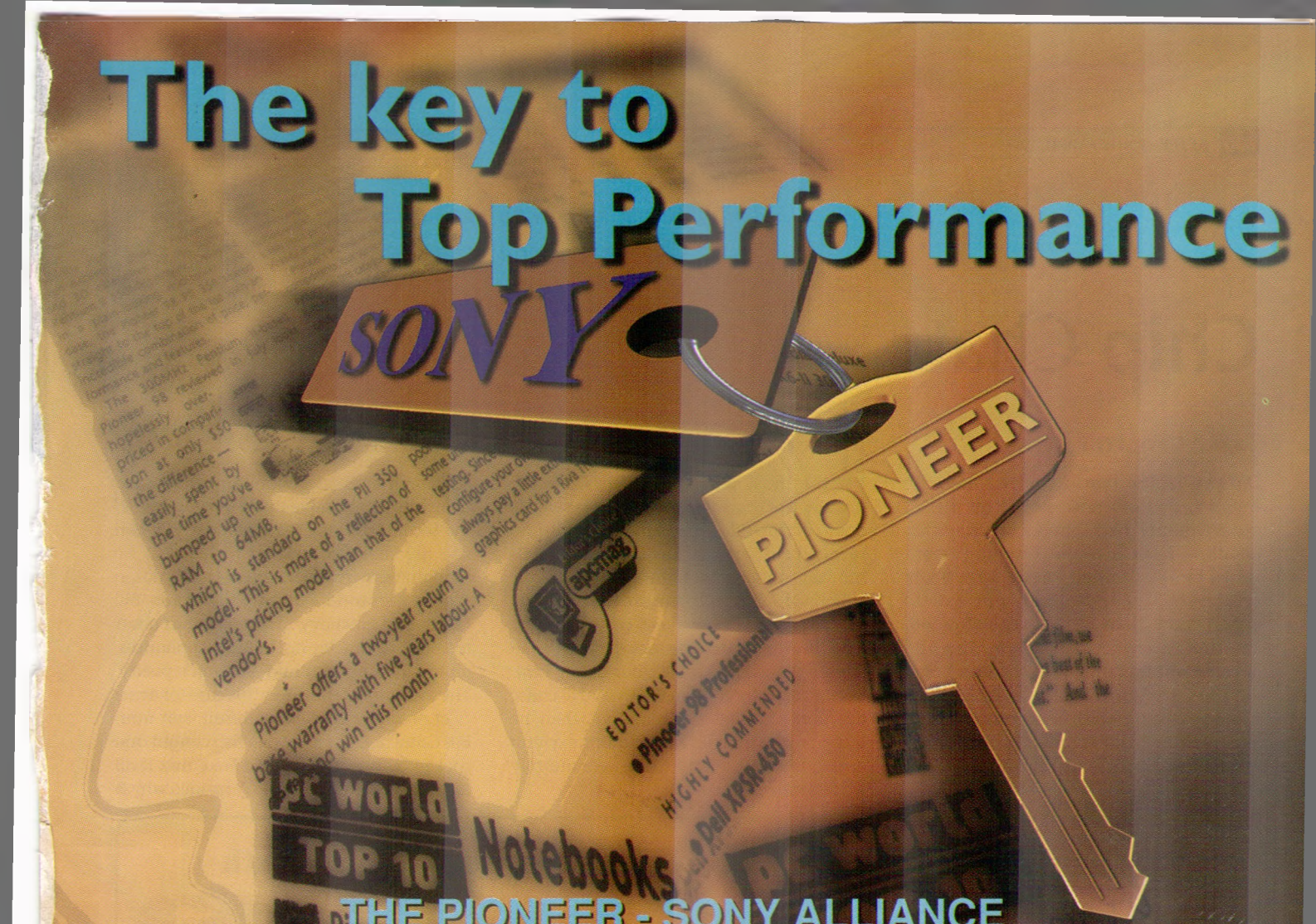
Virtual museums, personal Web sites, the growth of the Internet and increased interest in collections are also representative of a massive growth in pre-millennial angst. The *Australian Financial Review Magazine* recently identified (in part) this trend when it spoke to research organisation Pophouse as part of its 'Look Out!' feature in the February 1999 issue. According to Pophouse, the "meteroric rise in cinema attendance and use of computer games and the Internet all indicate a growing life-avoidance trend. For similar reasons, online religion and a passion for collectibles — collecting anything — will experience a surge of interest."

Surely, then, the only expression of this millennial angst that's more pure than an online museum or a personal collector page would be . . . a site devoted to the worship of Elvis Presley! There are, in fact, people that pray to Elvis — the authority on these matters, *Woman's Day*, once had a feature on people who had prayed to Elvis and had had their prayers answered. Others claim to have experienced visions of Elvis, or had Elvis appear to them in dreams. Sadly, the site that comes closest to meeting the needs of Elvis worshippers worldwide is devoted to selling Elvis astrology books. It's worth a visit, but the freak spotters out there are going to be disappointed that it's not, well, more freaky.

The best place to search for online religion is Yahoo, which literally features piles of them. After you've tried Yahoo, head on over to AltaVista, which is also a dab hand at locating sites designed to fulfill the online spiritual needs of the pre-millennially tense. Better still, try starting your own religion, stash some supplies and a shotgun to ward off rabid Y2K crowds, and wait for Elvis to appear in a spaceship.

Hannibal Lecter
http://gladstone.uoregon.edu/~cory/lecter/faq.html
Elvis is God
http://www.lifeintl.com/mag.html
Josh Gliddon

The key to Top Performance



THE PIONEER - SONY ALLIANCE

18 Awards in the last 8 Months

Pioneer 2000 SOHO PC

PII 350:	$2199
PII 400:	$2499
PII 450:	$2899

Supermico SBA BX M/B
64 M RAM
6.4 GB HDD
Diamond V550 8M VGA
Creative PCI 32 sound card
Macase ATX Midi Tower
SONY SPEAKER
SONY 1.44 FDD
SONY 32X CD-ROM
SONY 15" 100ES Monitor
Windows 98, Mouse, Keyboard

Pioneer 2000 Notebook

K6-2 300, 12.1 TFT:	$2550
K6-2 333, 12.1 TFT:	$2599
PII 300 13.3 TFT:	$3599
PII 333 13.3 TFT:	$4299

32 M RAM
4.3 GB IDE HDD
1.44 FDD
24X CD-ROM
16 bit sound & speaker
Optional External Display:
SONY 17" 200ES Monitor + $830

Warranty

Notebook: 1 Year, 3 Years optional
PC: 2 Yr Parts, 5 Yr Labour, On site Optional

Pioneer 2000 POWER PC

PIII 450:	$3699
PIII 500:	$3999

Supermico SBA BX M/B
64 M RAM
10.1 GB HDD
Diamond V550 16M VGA
Creative PCI 128 sound card
Macase ATX Midi Tower
SONY SUB WOOFER SPEAKE
SONY 1.44 FDD
SONY 6X DVD-ROM
SONY 17" 200ES Monitor
Windows 98, Mouse, Keyboard

PIONEER
COMPUTERS AUSTRALIA

Unit 17, 17-21 Bowden St
Alexandria NSW 2015

Quality System
Quality Endorsed Company

apcmag Editor's Choice

pc world BEST BUYS

PC MAGAZINE AUSTRALIA EDITORS' CHOICE

A.C.N. 076 874 112

PIONEERCOMPUTERS.COM.AU
sales@pioneercomputers.com.au

Tel: 02 9690 2888
Fax: 02 9690 0333

Pioneer Computers Australia is government ITS 2000 and ITS 2006 contract supplier

April is the cruellest month, breeding lilacs out of the dead land . . .
Chip Chat can be as cultured as the next person, you know.

Chip Chat

Export control

Did you realise that if you've surfed the Internet, you are now owned by the US government? No? Then consider this headline from a recent announcement issued by HP: 'Hewlett-Packard VerSecure receives US government approval to export more than 80 per cent of global Internet users'. We knew the US government had an effective control over domain names, but this is ridiculous. Although being under the control of the Australian government probably wouldn't be any more reassuring.

Link or swim

It seems the people at the White Pages Web site can't quite decide what's worth linking and what isn't. If you submit an email address as part of your entry, it appears online as a link, ready for the instant receipt of spam. If, however, you also submit a Web site address, it isn't linked. Very, very strange. Don't hold your breath waiting for the phone number to connect into your favourite dial-up software.

Ziggy-de-doo-dah

When news broke in late February that former Optus CEO Ziggy Switkoswki had scored the plum job of Telstra's head honcho, the burning question wasn't whether he had enough experience for the job, or if he knew any useful trade secrets from Optus. No, the race was on among the news writers of the land to see who could come up with the most pun-laden headline announcing his appointment.

Newswire went in hard and early with a Will Smith-flavoured 'Getting Ziggy with it: Telstra's new CEO'. *IT News* chose an older pop star reference in the form of 'Ziggy plays guitar at media circus'. AAP decided to play up the Optus angle with 'Ziggy says Yes to Telstra'. However, the collected wits of News Limited and Fairfax apparently decided the whole thing was just too hard, and were content with C-grade phone gags such as 'Ziggy gets the call'. Pikers.

Sub-er hero

For the most part, sub-editors are the unsung workhorses of the magazine world, doing all the fiddly checking and hassling recalcitrant writers. So Chip Chat feels morally obliged to highlight the heroic actions of *APC*'s chief sub, Kevin Pyle, who recently helped apprehend a burglar who had broken into the apartment of a sleeping woman on the floor below him. Kevin called the cops and then had to chase the thief through the building when he attempted to escape. Nothing this exciting ever happens to Chip Chat, so naturally we're thrilled.

Search engines: Fishy

As search engines continue to frantically transform themselves into portals/hubs/the second coming, it's a wonder you can still use them to look up things. But we thought we'd try. There are at least a dozen sites in the world featuring the words 'Bill Gates' and 'anchovy'. The two words occur together in articles on talking appliances, online gaming logs and children's poetry. The last-named site offers this cure for acne: "Get peanut butter, passionfruit, spit from Bill Gates and the head of a fish caught and cooked by two men named Fred, mix it all together and eat it." We have no idea why.■

Contest: Technology gag of the month



This month's gag is long and has been in circulation for a while, but is worth a read. It was submitted by Troy Cameron:

Drug dealers	Software developers
Refer to their clients as 'users' "The first one's free!"	Refer to their clients as 'users' "Download a free trial version"
Have important South-East Asian connections (to help move the stuff)	Have important South-East Asian connections (to help debug the code)
Strange jargon (stick, rock, wrap, E, source, the pigs)	Strange jargon (SCSI, RTFM, packet, source, Microsoft)
Realise there's tons of cash in the 14 to 25-year-old market	Realise there's tons of cash in the 14 to 25-year-old market
Clients love your stuff when it works, want to kill you when it doesn't	Clients love your stuff when it works, want to kill you when it doesn't
Job assisted by industry producing newer, more potent product	Job assisted by industry producing newer, more potent product
Often seen with pimps, hustlers and low-life	Often seen with marketing people, venture capitalists and fund managers
When things go wrong, a 'fix' is just a phone call away but may be expensive	When things go wrong, a 'fix' is just a phone call away but may be expensive
A lot of successful people get rich in this industry while still teenagers	A lot of successful people get rich in this industry while still teenagers
Do your job well and you can sleep with sexy movie stars who depend on you	Damn! Damn! DAMN!.

We'll be sending Troy an Ericsson water bottle and a copy of the game Sub Culture, so there. You too can be draped in back page glory. Send your technology jokes — the shorter and funnier the better— to chipchat@acp.com.au. If we publish your joke, you'll win a specially selected item from the APC prize cupboard.

NEW 366MHz RACING MODELS FROM DELL.
(HOLD ON TIGHT)



Dell® Inspiron® 7000 with a 15" screen

Shift into gear with the latest mobile Intel® Pentium® II processor 366MHz. It moves at top speed to better handle all your needs. And because it's from Dell, it's maxed-out on great new technology. You'll get the fastest mobile Intel® Pentium® II processor available, 366MHz; high-performance SDRAM; PLUS a huge 10GB Ultra ATA hard drive. And if that doesn't blow you away, maybe the 15" XGA active matrix display and 3D surround sound will. The new Dell® Inspiron® 7000 and 3500 notebooks with mobile Intel® Pentium® II processor 366MHz allows you to up the ante and hold onto your wallet. To experience it for yourself, give us a call or stop by our WebStore. (Feel free to loosen your grip now.)

NEW DELL® INSPIRON® 7000 A366LT
NEW INTEL® PENTIUM® II PROCESSOR 366MHz

- Integrated 256KB L2 Cache
- 64MB SDRAM
- 8GB Ultra ATA Hard Drive
- 3.5" 1.44MB Diskette Drive
- 8MB ATI® RAGE LT PRO 2X AGP Video Controller
- High-fidelity Audio SoundBlaster Compatible
- 24X Variable CD-ROM Drive
- 15" XGA Colour TFT Display
- Microsoft® Windows® 98
- NEW Microsoft® OEM Works Suite 99
- 56K Data/Fax Modem (V.90 Capable)
- Deluxe Carrying Case
- 1 Year Limited Warranty
- Free Lifetime Telephone Technical Support

$6,639* plus delivery

or $56 per week**

Upgrade options include:
- 10GB Ultra ATA Hard Drive $447
- 4X DVD-ROM Drive and Internal Decoder Card $331
- Call for a complete range of upgrades

NEW DELL® INSPIRON® 7000 A366GT
NEW INTEL® PENTIUM® II PROCESSOR 366MHz

- Integrated 256KB L2 Cache
- 64MB SDRAM
- 6.4GB Ultra ATA Hard Drive
- 3.5" 1.44MB Diskette Drive
- 8MB ATI® RAGE LT PRO 2X AGP Video Controller
- High-fidelity Audio SoundBlaster Compatible
- 4X DVD-ROM Drive and Internal Decoder Card
- 14.1" XGA Colour TFT Display
- Microsoft® Windows® 98
- NEW Microsoft® OEM Works Suite 99
- 56K Data/Fax Modem (V.90 Capable)
- Deluxe Carrying Case
- 1 Year Limited Warranty
- Free Lifetime Telephone Technical Support

$6,119* plus delivery

or $51 per week**

Upgrade options include:
- 128MB SDRAM $194
- Second Battery $194
- Call for a complete range of upgrades

NEW DELL® INSPIRON® 3500 A366GT
NEW INTEL® PENTIUM® II PROCESSOR 366MHz

- Integrated 256KB L2 Cache
- 64MB SDRAM
- 4GB Ultra ATA Hard Drive
- 3.5" 1.44MB Diskette Drive
- 256-bit Graphics Accelerator
- High-fidelity Audio SoundBlaster Compatible
- 24X Variable CD-ROM Drive
- 14.1" XGA Colour TFT Display
- Microsoft® Windows® 98
- NEW Microsoft® OEM Works Suite 99
- 56K Data/Fax Modem (V.90 Capable)
- Deluxe Carrying Case
- 1 Year Limited Warranty
- Free Lifetime Telephone Technical Support

$5,499* plus delivery

or $46 per week**

Upgrade options include:
- 128MB SDRAM $194
- 6.4GB Ultra ATA Hard Drive $194
- Call for a complete range of upgrades

intel inside
pentium® II

Call Dell Mon to Fri 8am-8pm, Sat 9am-3pm (EST), or visit our WebStore

Visit our 24 hour WebStore
for custom-configuration and on-line ordering

www.dell.com.au

DELL

BUY DELL **1300 303 172**

Please quote this key code: 7007521

DELL'S NORMAL TERMS AND CONDITIONS APPLY AND ARE AVAILABLE ON REQUEST. PLEASE CALL OR REQUEST ON-LINE.
***Prices and specifications subject to change without notice. All prices shown include tax but delivery is additional.** Certain configurations cannot be changed. Dell, the Dell logo, and Inspiron are registered trademarks of Dell Computer Corporation. The Intel Inside logo and Pentium are registered trademarks of Intel Corporation. Microsoft and Windows are registered trademarks of Microsoft Corporation. Other trademarks and trade names may be used in this document to refer to either the entities claiming marks and names or their products. Dell disclaims proprietary interest in the marks and the names of others. All efforts will be made to check for errors in typography and photography; however, inadvertent errors may occur for which Dell may not be responsible. Lifetime telephone technical support refers to lifetime of the system. ** Dell can arrange for rentals based on a 36 month term excluding stamp duty and FID which varies from state to state. Rentals and operating leases are available only to approved companies and business customers. Figures shown are indicative and may vary with interest rates. Copyright 1999 Dell Computer Corporation. All Rights reserved.
DELD0104/APC/IBC

TPG ☆☆☆☆☆ INTERNET SERVICE

TPG Beginner Pack

$2.95 Per Month

2 Hours Per Month x 12 Months = 24 Hours

$2.95 Per Month + $30 Admin Fee = **$65.40 Per Year**

Other Packages Also Available

OTHER INTERNET SERVICES AVAILABLE:

- **56K Permanent** Connections
 $500 Setup + $2000 Per Year Metro Areas
 Includes FREE Web Site & Domain Name Hosting
 Up To 10Mb For One Year; Regional Prices On Request
- **Web Site & Domain Name** Hosting
- **Web Site** Design
- **Virtual Private** Networks

TPG

TOTAL PERIPHERALS GROUP

A Prominent ISP With 70 Locations

•**FREE** Email Address •**FREE** 10Mb Web Space •V.90 & K56flex*

Register Online **www.tpg.com.au**

E-mail: internet_sales@tpg.com.au OR brisbane_sales@tpg.com.au

** 56K Service available in all major capital cities; Regional locations are currently being upgraded to 56K Service; Telephone connection charges are the Subscribers responsibility; TPG Internet Subscribers are bound by the standard Terms and Conditions found on the TPG web site

PHONE: 1300 360 855

02 9850 0843 OR 07 3859 1111

SYDNEY **BRISBANE**